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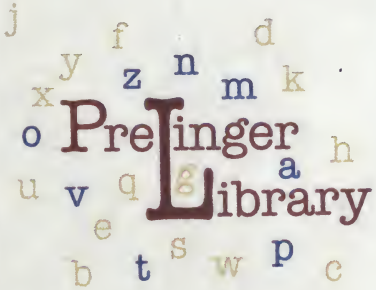

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Vol. 4 OCTOBER, 1904. No. 1.

THE WISCONSIN ARCHEOLOGIST

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POTSHERDS
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MILWAUKEE, WIS.

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POTTERY VESSEL

Sheboygan Village Sites. R. Kuehne Collection.

THE WISCONSIN ARCHEOLOGIST

A QUARTERLY BULLETIN PUBLISHED BY THE WISCONSIN ARCHEOLOGICAL SOCIETY.

Vol. 4. MILWAUKEE, WIS., OCTOBER, 1904. No. 1.

Potsherds From Lake Michigan Shore Sites in Wisconsin.

BY ALPHONSE GEREND, M. D.

Of the diverse classes of aboriginal remains obtained from Wisconsin village sites, potsherds, though by reason of their fragility the least capable of withstanding the destructive power of the elements, have yet survived in goodly quantity.

This is most fortunate for the student of antiquities, since as the number of entire and restored earthenware vessels obtained from various sites is extremely small, our knowledge of local aboriginal pottery must necessarily depend to a very great extent upon a study of the remaining sherds. By a comparison of these with the perfect vessels recovered we may readily realize that a great majority of the most interesting and artistic productions of the local fictile art have been destroyed.

In many instances careful and persistent search has failed at this late day to discover but a single fragment or two of what was from all indications at one time a capacious and handsome vessel.

By means of them we are enabled to judge of the culture status of the early inhabitants of the sites from which they were recovered, the other artefacts found usually harmonizing in a general degree of workmanship with the pottery.

Scattered over the entire area of these very extensive Wisconsin village sites, stretching at intervals along the shore of Lake Michigan from the Illinois state line to the shores of Green Bay, these potsherds and other vestiges of early aboriginal occupation are to be found.

They usually repose, as disclosed by the elements, on the top of the more or less level surface of the clear lake sands, or protrude from a sandbank or depression, often surrounded by the ashes and charcoal of some primitive fireplace.

After being once disclosed they become more or less scattered and broken, and these fragments are continually buried and disclosed again as the surface changes.

Thus fragments of the same vessel are often found both on and at varying depths beneath the sandy surface.

Some of the fragments of a pot restored by the writer, and at present in his cabinet, were obtained on top, while the remainder were recovered at a depth of four feet beneath the surface.

Thus it may occur also that pieces of the same vessel may be found together on the surface, or separated from one another, sometimes by considerable distances.

In several instances vessels have been found in position, surrounded by and filled with sand, but these quickly fell to pieces when an attempt was made to remove them.

The sherds may be separated into two principal groups, according to the nature of the tempering material. In the first of these may be placed all of the pottery tempered with materials other than shell, and in the other the shell-tempered ware.

The former predominates on every site mentioned in this contribution, while the latter occurs less frequently and in only certain of these localities. The material employed in tempering pottery of the first group is usually granite, sand or crushed flint. The granitic material appears to have been employed in a great majority of cases, being easily obtained from boulders near at hand, which in a state of disintegration yield the characteristic particles.

This pottery is usually fabric-marked (though plain and unornamented in some cases), and ornamented in addition with incised lines, cord-impressions, imprints of various implements, of bones, seeds, finger-tips, fibers, fossils, etc. Rows of stamped impressions of an irregular shape, or elliptic and grooved by cord-marks, often occur. These elliptic stamp-impressions are also commonly found on pottery in other parts of the state. The fabric-marks vary considerably, on the various sites, in the fineness and density of the material employed, and usually run in more or less vertical lines, i. e., from the rim downwards. Where the interior surface is fabric-marked the more prominent lines are generally vertical. The inner surface of the rim of certain sherds is also often decorated with bands of diagonal or horizontal cord-impressions; elliptic, circular or square indentations.

The ornamentation is usually confined to the rim and neck of the pot, with the exception of the fabric-impressions, which when in evidence are usually imprinted over the entire external surface, or less frequently extend only upward to the margin of the rim decoration.

The variety of rim decoration is almost endless. Certain styles are seldom duplicated on the same village site, while others appear to be frequently repeated on various sites.

In some of these instances the material and workmanship are so nearly identical as to indicate that they may possibly be the products of the same individual.

The shape of this lake shore pottery varies from an almost perfect globe with incurved rims, to tapering forms with a more or less constricted neck and upright or expanding rims.

The edge of the rim may be either plain, rounded, squarish, indented, scalloped or wavy. The color of the sherds varies according to the character of the material employed.

In a small number of examples the rim projects. This projection was apparently applied after the fabric-impressions were made, as the latter may often be discerned where portions of the rim are broken off. In a small number of examples the rim is hexagonal or octagonal in outline, there being distinct ornamental elevations at the angles. Some of the vessels, as indicated by sherds and restorations, had perforations below the rim. These may be quite large, beveled, or small, closely-set openings. Some fragments exhibit perforations possibly made to facilitate the repairing of a broken or fractured vessel.

From these sites there have also been obtained a small number of miniature rounded vessels, evidently moulded on the thumb. They are most probably toys. One from the Sheboygan site is shell-tempered.

An interesting fact in connection with the shell-tempered ware is that the quantity of this pottery from a site usually varies in direct ratio with the quantity of bone objects and shell recovered from the site. Thus in such instances as have come under the writer's observation there appears to be a close relationship between shell deposits, bone artefacts and shell-tempered pottery, which may suggest that they are the remains of one tribe.

Although this ware occurs on certain sites in common with the other class, it is more frequently obtained in distinct areas on these sites, and accompanied by a different class of artefacts. The two varieties of pottery are seldom intermingled. In these localities shell-tempered pottery is probably never fabric-marked and is usually of a brighter color than other ware found there. It is oftenest ornamented with incised lines, stave-shaped grooves and indentations of various shapes. The fragments have a tendency

to split up in layers. The rim is often plain and upright, and in many cases also abruptly recurved or drooping. The tempering material is either finely ground and sparse, or coarse and thickly distributed through the paste.

Direct evidences of the exact method of the manufacture of pottery on these sites are almost wholly wanting. This is of course to be expected, since it is probable that many of the primitive potters' tools, including shaping implements, paddles, roulettes, stamps, etc., were of wood and similar perishable materials.

The ware itself does not suggest the use of basket moulds, or of the coiling process employed in some other parts of this country. It is probable that the greater portion at least, if not all, was moulded by the hand, with the aid of simple tools. Heaps of burned and blackened boulders to be found here, may have served as kilns.

In many instances this pottery is coated on the inner surface with soot, which is suggestive of the use of heated stones in connection with water in the preparation of food. There are also many fragments showing this blackening on the external surface. Liquids readily penetrate through their walls in the present porous condition. One pot obtained from the Sheboygan sites, and described in the Wisconsin Archeologist (Vol. 1, No. 3), which was cracked through its entire extent, had apparently undergone a reparative process by having the two halves pierced and secured to one another by cords. It therefore was no longer capable of holding any liquid substance and may have been employed for containing food, etc. Some small bowls restored appear to have been furnished with a beak.

SAND RIDGE POTTERY.

The "Sand Ridge" is the southernmost of these extensive lake shore sites and is situated in Kenosha county, bordering the lake shore immediately east and south of the city of Kenosha and extending a distance of some miles southward to the state line. As the name implies, this locality is covered with sand banks and hollows where are to be observed abundant vestiges of aboriginal occupancy. These have been investigated by Mr. F. H. Lyman, of Kenosha, and other local collectors, and a large amount of interesting material secured.

The pottery obtained here exhibits some well-marked characteristics. Many of the sherds indicate the very large size of some of the former vessels. The walls were very substantial and are

profusely ornamented. Mr. Lyman has some large and fine specimens in his cabinet, including a number which it has been possible to partially restore. So far as may be learned, there are no perfect or completely restored vessels from this locality in existence. In the Lyman collection are also beads of clay and a pipe of the same material.

In contra-distinction to the pottery from the other village sites mentioned, it will be noticed that this ware has the body ornamented with bands of figures of various styles. The rims are inverted in many instances. The following, illustrated in Plate I., are selected as representative specimens:

Fig. 1 is a substantial fragment, having an inverted rim, almost square at the edge, and ornamented with banded figures bearing square roulette-marks. It is of a dark reddish color.

Fig. 2 is a very fine fragment, also with an inverted rim. It is thick and of a dark yellowish color. The rim is squared off, and bears large,

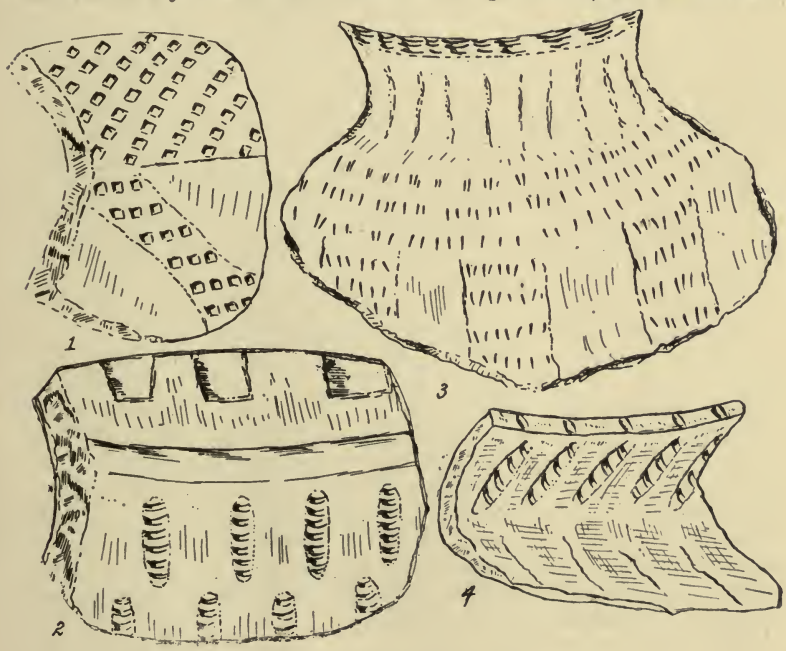

PLATE I

Sand Ridge Potsherds. F. H. Lyman Collection.

square indentations at the outer margin, below which is a wide groove. The body of the sherd is ornamented with large stamp-impressions.

Fig. 3 is a large fragment, with a slightly expanding rim. It is of a dark color. A zone of vertical cord-impressions decorates the neck. At the shoulder are three lines of short vertical incisions, while the body is ornamented with vertical bands inclosing rows of incised lines.

Fig. 4 is a rim-fragment, ornamented with stamp-impressions.

OZAUKEE COUNTY POTTERY.

From the camp or village sites situated along the lake beach near the towns of Mequon, Port Washington and Belgium, in Ozaukee county, a number of pottery fragments have been obtained, though not yet in sufficient quantity to permit of intelligent study or comparison. These are said not to differ particularly in composition or decorative treatment from those of the New Amsterdam locality, next to be considered.

NEW AMSTERDAM POTTERY.

The New Amsterdam site has been previously described by the author in an early number of the Wisconsin Archeologist. (Vol. 1, No. 3.) It is located near the former hamlet of New Amsterdam, at a distance of about fifteen miles south along the lake shore from the city of Sheboygan. It marks the southern termination of these aboriginal dwelling places in Sheboygan county. Indications of aboriginal occupation are said to have been far more abundant there in an early day than they are at present.

The earthenware obtained here exhibits a quite as marked individuality as that of the locality just considered.

Most of the pots appear to have been of large size, globular in shape, slightly constricted at the neck, and with a very slightly expanding rim. The majority were marked over their entire outer surface with coarse fabric-impressions. The tempering material employed was very coarse; consisting of sand, disintegrated granite, and in some instances of crushed flint. The walls are generally very thick and the ornamentation rude. Some very thin and delicate specimens have been found, a few being cord-marked. These examples are not, however, characteristic of the greater quantity of this ware, which in its substantial construction and decorative treatment harmonizes well with the other artefacts of stone and copper found.

A very nice demonstration of this variance of the aboriginal artefacts of this site, and of the two following, may be had by

comparing the copper fishhooks from each of them. Those of the New Amsterdam locality are large and rude, while those of the Sheboygan and Two Rivers sites are thin, slender and evenly finished. The majority of the potsherds from New Amsterdam come from certain foci, i. e., from the surface of a few sand banks. The sherds shown in Plate II. were procured by the writer on one of a number of visits to this locality. All of these, as well as many others, were obtained from a single bank, lying either in the clear sand or in a deposit of black ashy material. Some sand banks and blows on this site are so completely covered with minute fragments of pottery as to give them a reddish appearance. An entire vessel found here in an early day is said to have been of such size that the finder could not encircle it with his arms. It was broken while its removal was being attempted. Whether this statement be true or not, it is however, as indicated by the potsherds obtained, no unfair indication of the size of some of the larger vessels. A vessel found here in the clear sand (one wall of which had collapsed upon the other, lying horizontally) contained ashes.

The characteristic ornamentation of earthenware from this site was obtained by the use of coarsely woven fabrics, punched holes (forming nodes on either surface), incised lines, finger, corncob and implement-impressions. It varies in color from a light brownish-red to black.

No shell-tempered sherds have been found here to the writer's knowledge. In the Wisconsin Archeologist (Vol. 1, No. 4) is illustrated the only vessel from this locality which has been completely restored.

The following (Plate II.) are descriptions of representative sherds from this site:

Fig. 5 is of a dark brown color, marked with a coarse fabric-impression. The small circular cavities extend through three-fourths of the thickness of the wall. This fragment has the interior surface ornamented. The edge of the rim is rounded.

Fig. 6 is a fine fragment, imprinted with parallel horizontal rows of finger-tip impressions, below which are four deep grooves. This fragment is thick and of a bright color.

Fig. 7 is a fragment of unusual form, the rim being incurved and smooth, with a rounded edge. Below the rim are fabric-marks and widely separated nodes. It is of a reddish-brown color.

Fig. 8 is ornamented with a rather regular fabric pattern, together with two horizontal rows of finger-tip impressions, deep holes and parallel horizontal grooves. This style of ornamentation occurs also on fragments of other vessels found here, indicating that it was a favorite one with some individual clay worker.

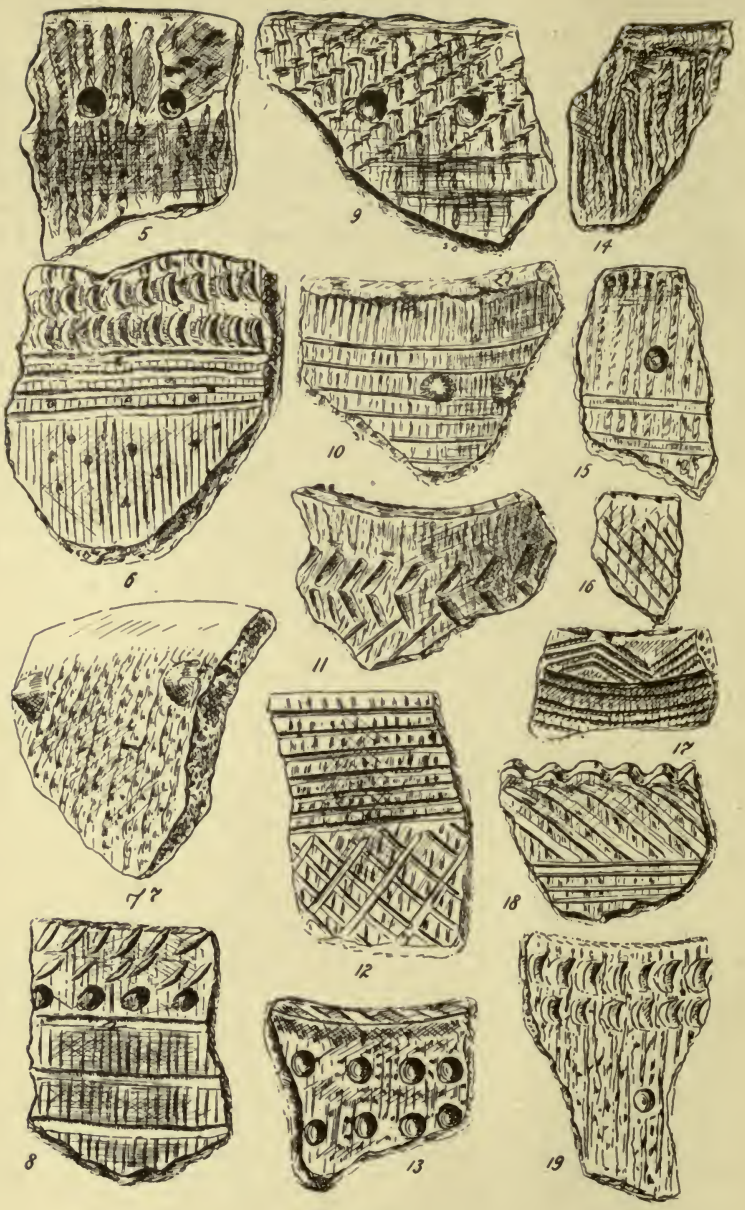

PLATE II

New Amsterdam Potsherds. Gerend Collection.

Fig. 9 is a very handsome specimen, of a dark mottled color on the external and a reddish color on the inner surface. It is ornamented with a rude fabric pattern and very distinct cord-impressions, the latter extending obliquely down from the wavy edge for a distance of about 1¾ inches. There are deeply punched holes, about an inch apart, producing indistinct elevations on the inner surface.

Fig. 10 has a rounded slightly raised rim, with horizontal grooves below, among which are a row of nodes pressed out from the inner surface. It is of a reddish sandy material.

Fig. 11 has an abrupt outward curve and a flat rim. It is marked with a series of narrow parallel grooves, of which some extend over the rim. At the neck are rectangular indentations, meeting at an angle, and diagonal grooves. The color is a dark brown.

Fig. 12 is a fine fragment, ornamented near the rim with a band of horizontal grooves, below which is a net-work of the same. It is of a light color.

Fig. 13 is a rim-fragment, ornamented with rows of circular indentations and the edge by oblique markings. Color light.

Fig. 14 is a rude fabric-marked rim-piece.

Fig. 15 is ornamented with grooves and circular indentations.

Fig. 16 has oblique grooves and small indentations at the edge.

Fig. 17 is a cord-marked pattern rarely found here. It is of a dark color and has a projecting rim ornamented by a chevron pattern. Below the rim are parallel horizontal cord-impressions.

Fig. 18 expands at the rim slightly more than the preceding; the edge is nicely scalloped. At the neck are parallel horizontal grooves, above which are wider grooves extending obliquely to the margin of the rim. This fragment is of a dark color.

Fig. 19 has two horizontal rows of finger-tip impressions, with circular indentations below.

SHEBOYGAN POTTERY.

The Sheboygan or Black river village sites are situated to the north of the New Amsterdam location and several miles south of the City of Sheboygan, beginning at the mouth of Black river and extending along the sandy beach of Lake Michigan at intervals for a distance of some miles. This locality and its abundant aboriginal remains have also been fully described by the author in an early number of this publication. (Vol. 1, No. 3.)

The pottery obtained here varies quite distinctly in character and ornamentation from that of the several foregoing localities. The majority of the sherds are embellished with cord and fabric-impressions. Shell-tempered earthenware has been recovered from but one small area, where also occur small shell-heaps, bone artefacts, the bones of various animals, and cracked and broken boulders. Three vessels obtained here have been almost entirely and a small number of others partially restored; thus our knowledge of this ware is not as entirely dependent upon the sherds as

elsewhere. These pieces are now preserved in Sheboygan collections and have been described in detail and figured in several issues of the Wisconsin Archeologist.

A recently restored vessel, in the R. Kuehne collection, is illustrated in the Frontispiece.

Pottery pipes and miniature clay objects have also been recovered.

The sherds represented in Plate III. are selected as representative and are here considered in detail.

Fig. 20 is a very handsome example. The external surface is dark, the inner of a reddish color. The rim is flaring and angular, the edge ornamented with a double row of small oval indentations. Below the rim and at the neck are horizontal rows of larger irregular indentations, between which are triangles of distinct double-twisted cord-impressions.

Fig. 21 is a rim-sherd coarsely fabric-marked. The rim curves outward and is ornamented with rectangular projections. The neck for a distance of 2½ inches downward is ornamented with very distinct cord-impressions. A fragment of this vessel, recently added to the writer's cabinet, measures about one foot in diameter. The color is a rich dark brown. It may be of interest to state that potsherds bearing this identical ornamentation have been recovered from mounds located near this site.

Fig. 22 is a very fine fragment, the rim being almost straight. At the neck and margin are rounded, elevated bands ornamented with deep, oval, stamped impressions. Between the latter are narrow vertical grooves. The inner edge of the rim is indented. The body of this sherd bears the imprint of a fabric and horizontal rows of angular incisions.

Fig. 23 is a very plain, thin fragment, of a dark brownish color. The rim is expanding and undulate.

Fig. 24 is a shell-tempered fragment, of a light color, ornamented with rows of circular indentations and intersecting grooves.

Fig. 25 is fabric-marked, and ornamented in addition with cord-impressions extending obliquely to the margin of the rim, which is fluted in a spiral manner.

Fig. 26 is a very fine and delicate rim-piece, of a light color, fabric-marked throughout. It curves gently outward. The margin is slightly raised and bears elliptic impressions. Below this is a row of more widely separated indentations, horizontal cord-impressions, and three parallel horizontal rows of seed-like impressions.

Fig. 27 is a plain shell-tempered fragment, of a light surface color, the mass being gray and compact. The rim curves outward and terminates in a sharp edge. The lip is slightly incurved.

Fig. 28 is a shell-tempered fragment, bearing a row of square indentations.

Fig. 29 is a handsome fragment, exhibiting the outcurved, drooping rim characteristic of some of the shell-tempered ware. At the edge are oval indentations, and extending downwards from it, deep, stave-shaped grooves. Between these are oblique lines of impressions, such as may have been made by trailing a blunt-pointed implement (held obliquely by the hand) over the surface.

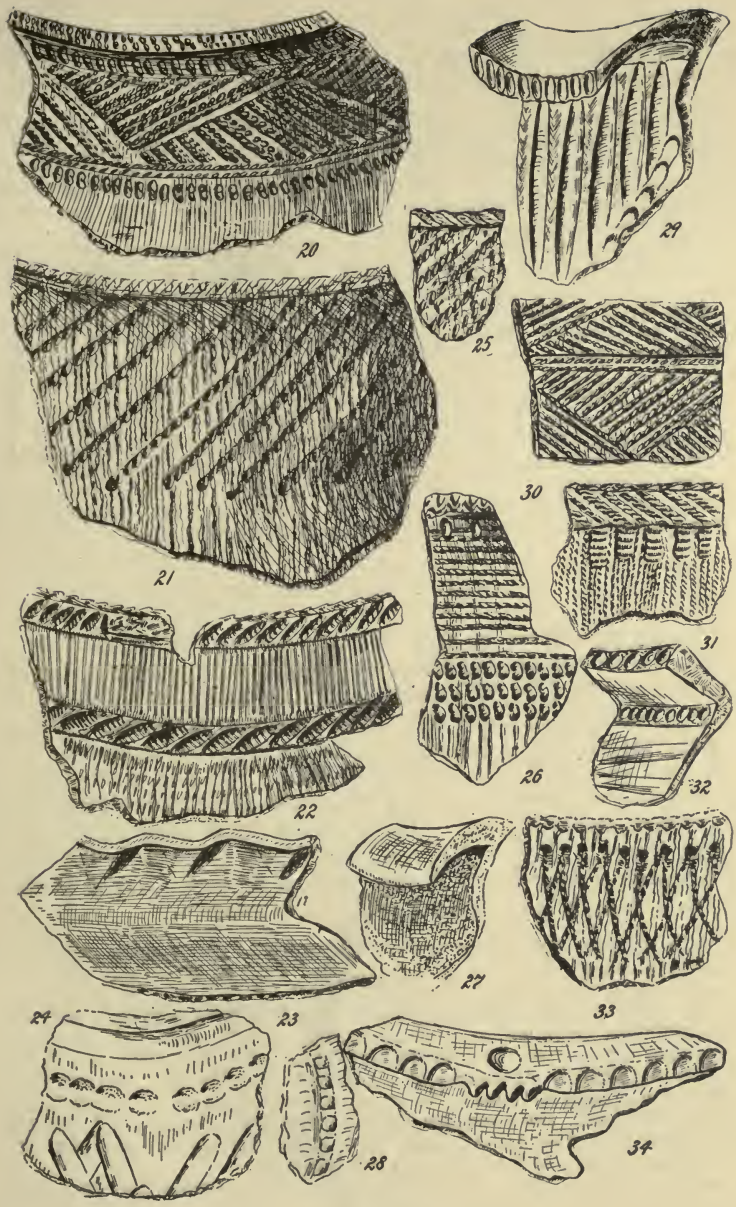

PLATE III

Sheboygan Potsherds. Kuehne and Gerend Collections.

Fig. 30 is an elaborately ornamented sherd having a projecting, rather straight rim. The material is dark in color and very compact. The ornamentation consists of a double row of horizontal cord-impressions, immediately below the rim, from which triangular cord-marks extend in opposite directions over the rim and downwards towards the neck of the vessel.

Fig. 31 is cloth-marked, with a slightly projecting rim, which is ornamented with oblique cord-markings. The margin is notched. Below the rim are stamp-impressions of a somewhat rectangular shape.

Fig. 32 is a handsome sherd of a light color, shell-tempered, and having an abruptly flaring rim ornamented at the margin with shallow oval indentations. About the neck is a band of similar though smaller indentations, below which are shallow horizontal and oblique grooves.

Fig. 33 is fabric-marked over its entire surface. The ornamentation at the rim consists of intersecting cord-impressions. The margin of the rim is notched. This style of decoration is unusual in this locality. It produces a very pleasing effect. The color is a mottled brownish.

Fig. 34 is a fine, light colored, recurved rim-fragment. The margin is ornamented with alternate series of notches and semicircular indentations, above which on the flat surface is a circular impression.

TWO RIVERS POTTERY.

The Two Rivers village sites are among the most extensive in Wisconsin and extend for some miles northward along the lake shore from the City of Two Rivers, in Manitowoc county. Mr. H. P. Hamilton, residing there, has for many years made this site the special object of his investigations, and has accumulated a rich and extensive collection therefrom. He has in his cabinet several fine earthenware vessels which are entire; or restored from fragments obtained here. These pieces have been described in earlier issues. (Vol. 1, No. 4.) Dr. W. H. Holmes, in his recent monograph, "Aboriginal Pottery of the Eastern United States," has thus described the Two Rivers earthenware:

"The pottery of this site presents pronounced Algonquian characters, and if the sherds were to be intermingled with those of Atlantic coast sites it would be difficult to separate them."

"The paste of this pottery is not very fine grained, and it is tempered with silicious particles, sometimes rather coarse. The pot or caldron represents variants in form, extending from deep bowl shapes on the one hand to rather tall jar shapes on the other. In size the specimens vary from minute cups to vessels 18 or 20 inches in diameter. The base is rounded or conic, the shoulder is often slightly angular, and the neck is more or less constricted. The rim is generally turned outward. The lip is much varied in form and embellishment.

The surface is generally well covered with texturing and decoration. The body has been finished by paddling or rocking with textile-covered tools, or by cord-wrapped roulettes—usually, I believe, the latter—the

PLATE IV

Two Rivers Potsherds. H. P. Hamilton Collection.

implement having been rolled up and down from rim to base, leaving approximately parallel printings. After the malleating process was finished, the neck and rim were smoothed down and decorated in various ways, most generally by impressing cords into the soft clay, producing patterns, or merely repeating indentations of the cord laid on flat or doubled up, making deep indentations. This treatment extended to the margin of the lip and, in cases, to the interior surface. Trailed and incised lines and punctures are seen in numerous instances, and in the vessels suggesting Iroquoian relationships the patterns resemble those characterizing the Iroquoian ware. (20 Ann. Rep. Bu. of Am. Ethno., pp. 196-97.)

Dr. Holmes figures sections of a number of rims of Two Rivers vessels, and states that:

"One of these has a sharp projection such as is frequently seen in the Iroquoian ware of New York, and it is further noted that the mouth of vessel was squarish, emphasizing the likeness to Iroquoian work."

He adds:

"It is not at all impossible that the influence of the powerful tribes of New York extended to the western shores of the Great Lakes, but since this angular form is undoubtedly due to the influence of bark vessels, it may have had an independent origin in the West."

Two Rivers pottery resembles that of the Sheboygan site quite closely. According to Mr. Hamilton's observations, shell-tempered pottery does not occur here.

Among these sherds are some of an exotic nature which strongly remind one of New Amsterdam pottery. In fact, the exact counterpart of the sherd shown in Fig. 37 has been found on the New Amsterdam site.

The fragment shown in Fig. 44 also shows a close resemblance to New Amsterdam sherds in being thick, heavy, coarsely tempered and rudely ornamented.

The following, figured on Plate IV., are described as characteristic of this site:

Fig. 35 is a very fine fragment from a globular-shaped vessel with an angular (hexagonal) rim. This fragment is finely fabric-marked, even underneath the projecting portion of the rim, indicating that the projection had been added after the fabric impression was made.

The elevated and projecting angle was probably produced by pressure from the inside with some implement. The rim is ornamented with rows of cord-impressions, and at the angle by a series of elliptic stamp-impressions. The latter impressions are also evident below the rim and at the inner margin.

Fig. 36 has a slightly projecting, cord-marked rim, below which are diagonal rows of irregular impressions and diagonal cord-impressions.

Fig. 37 is plain and of a dark color, having a rounded edge, and ornamented with rows of annular impressions made with a hollow implement.

Fig. 38 has vertical rows of indentations on its external and two horizontal rows of similar impressions on its inner surface. The outer and inner margins of the rim are indented. The color is a brownish-red.

Fig. 39 is a fine fabric-marked sherd, ornamented with double horizontal and vertical rows of small circular indentations. The inner surface is vertically cord-marked.

Fig. 40 is of a mottled gray and brownish color, finely fabric-marked and also ornamented with a band of raised squares pressed out from within. These are bounded by vertical and horizontal grooves. The edge is marked with dentated grooves.

Fig. 41 is a curved fragment, ornamented with deep horizontal and vertical grooves. It is of a dark reddish color.

Fig. 42 is a smooth, plain fragment, ⅛ inch in thickness. It is composed of a black, compact paste, veneered with a very light-colored material on either surface. A similar fragment has been found at New Amsterdam.

Fig. 43 is an angular rim-fragment, dentated at the edge. It is ornamented above by bands of diagonal and horizontal cord-impressions and below by a series of elliptic indentations. It is of a hard material and dark color.

Fig. 44 is ornamented above and below by horizontal rows of finger-tip-impressions, between which are long, wide, curved grooves passing diagonally downwards from the side of small circular indentations. The color is light reddish and the tempering material very coarse.

Fig. 45 is composed of a compact black paste, reddish on the inner surface. The rim projects and is horizontally cord-marked. The edge is notched and the inner surface decorated with three rows of horizontal cord-impressions. Below the rim on the outer surface is a row of irregularly shaped indentations, parellel rows of cord-impressions and traces of a bevelled opening.

Fig. 46 is a fine substantial fragment, distinctly fabric-marked with a widely projecting, angular, fabric-marked rim, which is dentated at the margin and marked below by a row of deep angular indentations. This fragment is quite glossy and of a brownish color.

Fig. 47 is a slightly projecting rim-piece, which is marked with semi-circular cord-impressions. Below the rim are diagonal and horizontal cord-impressions and a row of irregularly shaped indentations. The inner surface is embellished with a band of oblong, vertical, stamp-impressions.

Fig. 48 is a crude, thick, reddish colored fragment, marked with diagonal grooves. The edge is ornamented with cord-impressions.

BROWN COUNTY POTTERY.

The sherds shown in Plate 5 were obtained from two village sites in Brown county. Those represented by Figs. 49 to 55 are from a site extending along Green Bay from Red Banks southwest to Point Au Sable, a distance of about two miles.

Those illustrated by Figs. 55, 56 and 57 are from a site two miles north of the City of Green Bay, near the mouth of the Fox river. This locality, according to Mr. J. P. Schumacher, the well-known local student, is quite low and covered by water in the spring, with the exception of a small knoll a few acres in extent. This gentleman has lately succeeded in restoring a large vessel from fragments obtained from one of these Brown county sites. It is described elsewhere in this bulletin.

Fig. 49 is a handsome specimen, supplied with a handle. The mass is of a light material, shell-tempered. The outer surface is dark. The handle is nicely curved and ornamented with three grooves. Below it are a series of small indentations. The rim is slightly expanded and notched at the edge. The handle is of a size large enough to be conveniently grasped with two fingers.

Fig. 50 is a shell-tempered fragment, also supplied with a small grooved handle, extending from the edge of the rim to the neck. The

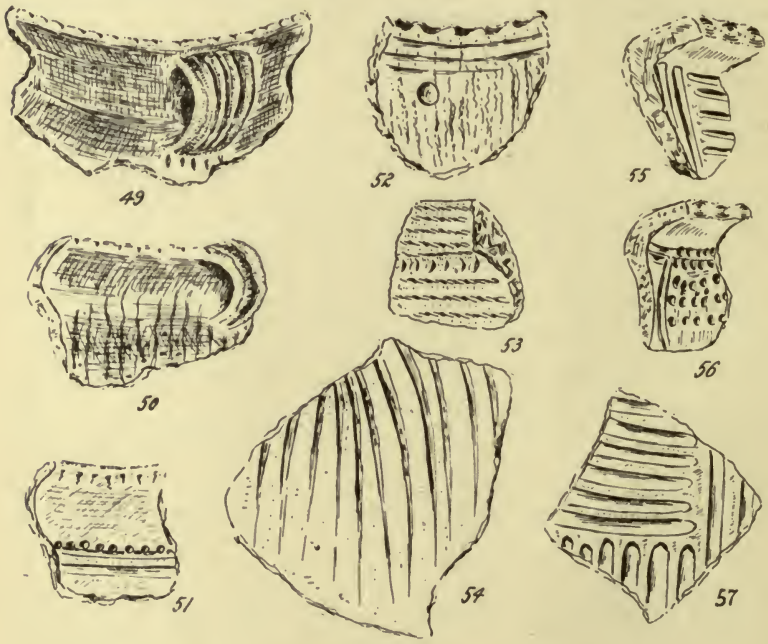

PLATE V

Brown County Potsherds. J. P. Schumacher Collection.

flaring rim is notched at the edge. Extending downwards from the neck are irregular incised lines.

Fig. 51 is a fragment of a small pot, of a black material, ornamented at the margin with irregular impressions. At the neck are a row of circular indentations and horizontal grooves. It is not fabric-marked.

Fig. 52 is of a light reddish color, ornamented at the edge with elliptic grooved indentations and below by fabric-impressions and circular indentations.

Fig. 53 is cord-marked on both the inner and outer surfaces. The rim projects slightly.

Fig. 54 is a shell-tempered sherd, of a light-colored material, ornamented with the grass impressions.

Figs. 55 and 56 are abruptly recurved and ornamented with incised lines and circular and elliptic indentations.

Fig. 57 is of a light color, with a fluted surface.

In concluding this contribution to Wisconsin archæology, the writer desires to acknowledge his indebtedness to the following local students and collectors for the loan of material and other favors: Mr. H. P. Hamilton, S. D. Mitchell, Rupert Kuehne, J. P. Schumacher, P. V. Lawson, Chas. E. Brown, F. H. Lyman, Paul A. Seifert and John Gerend.

He trusts that through the activity and coöperation of his fellow students, similar studies, especially of the aboriginal earthenware of the Fox, Wisconsin, Rock and Mississippi river valleys, Lake Superior shore and similarly productive regions in Wisconsin, may be undertaken.

Additions to the List of Wisconsin Aboriginal Pottery.

BY A. GEREND AND C. E. BROWN.

In the Wisconsin Archeologist (Vol. 1, No. 4, July, 1902), Hon. Publius V. Lawson, of Menasha, published a list of local aboriginal earthenware for the benefit of Wisconsin students, in which the existence of a total of seventeen pieces, either perfect or restored, was recorded, and these vessels briefly described and several of them figured.

It is desirable that the following additional records should be added thereto.

The very brief descriptions given are obtained from photographs and data kindly furnished by the present owners of these

vessels. It is very likely that the present activity among Wisconsin students will lead to the restoration of a number of other vessels. We may, therefore, in the near future reasonably expect a very considerable addition to our records.

THE LIST.

18. A very large and handsome vessel, restored from 450 fragments obtained at Dykesville, in Brown County. (Sec. 13, T. 25, R. 22 E.) Its capacity is a little over two bushels.

It measures 20 inches in height, 15 inches across the opening at the top and 22 inches in diameter at the body. It is the property of Mr. J. P. Schumacher, of Green Bay.

This is the largest known example of Wisconsin aboriginal earthenware.

19. A vessel recently restored from fragments obtained on the Sheboygan village sites.

It is very narrow, with a vertical rim and conical base. The walls are rude and thick and of a yellowish-brown color. The dimensions are: height, 11 inches; diameter at the top, 7½ inches. It is in the Rudolph Kuehne collection at Sheboygan. (See Frontispiece.)

20. Is in the same cabinet.

"It is of lenticular, flask-like shape, surmounted by the head of an effigy, probably intended to represent a turtle. The opening of this vessel is circular, about 1½ inches in diameter, and is situated back of the head. There are incised ornamental lines along the border. The material is of a dark gray color and shell-tempered. The measurements are: height, 3 inches; diameter, 4¼ inches." As far as the writer has been able to ascertain, this is the only specimen of its kind found in the state. It was obtained with a gravel-pit burial at Silica, Fond du Lac county.

21. This vessel has a body of a globular shape, with a polished surface and an undulate expanding rim. It is made of a black shell-tempered material, and is ornamented at the shoulder with a zigzag pattern of incised lines.

The measurements are: height, 4½ inches; rim diameter, 3 inches, and extreme diameter of body, 6 inches. It is the property of Mr. John Gerend, of Sheboygan.

It was obtained from the same locality as the vessel just described.

22. Mr. S. D. Mitchell, of Ripon, has succeeded in restoring a vessel from sherds procured from a village site in the township of Mecan, in Marquette county.

"It is 5 inches high, 4½ inches in diameter at the mouth and 6½ inches in greatest diameter at the body. It has two ears for suspension and three irregular incised lines about the top just below the rim."

23. In the possession of Mr. H. E. Knapp, at Menomonee, is a small vessel which was obtained from a mound formerly located about 1½ miles north of the Northern Hospital for the Insane, near Oshkosh, in Winnebago county.

It is ornamented with broad grooves and indentations.

It is about 3½ inches in height. The greatest diameter of the body is 4½ inches.

24. In the W. H. Elkey collection, at Milwaukee, is a handsome vessel which was obtained from a low mound located on the farm of Mr. Henry Halter, in the township of Caledonia, in Racine county, in 1877. This vessel was formerly in the G. A. West collection. The body is of a globular shape, with a vertical rim, and is furnished with two opposite handles. It is of a dark color, and is ornamented with grooves and incisions.

Membership

The Wisconsin Archeological Society desires to greatly increase its membership, particularly in the northern and western portions of the State, and asks of its many members and friends that they kindly send to the Secretary the names and addresses of any persons whom they may know to be interested, in order that they may be communicated with and their coöperation secured.

Records of the location of mounds and other antiquities in every part of the State are desired. On application to the Secretary, lists of the already recorded antiquities of any county or region will be furnished, together with full instructions for the conducting of further investigations.

Wisconsin Archeological Society.

MILWAUKEE, WIS.

Incorporated March 23, 1903, for the purpose of advancing the study and preservation of Wisconsin antiquities.

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All communications in regard to the Archeological Society or to the "Wisconsin Archeologist" should be addressed to C. E. Brown, Secretary and Curator, Office 1214 Chestnut St., Milwaukee, Wis.

Platforms Nos. 1 and 2. Seen from the Southwest. No. 1 at the left.
Trempealeau, Wis.

THE WISCONSIN ARCHEOLOGIST

A Quarterly Bulletin Published by the Wisconsin Archeological Society.

Vol. 4. MILWAUKEE, WIS., JANUARY, 1905. No. 2.

Certain Archeological Features of Western Wisconsin.

By G. H. Squier.

There has never to my knowledge been any attempt at a systematic study of the prehistoric remains of this western central portion of Wisconsin. The most important contribution on the subject was undoubtedly that made by Hon. Geo. Gale, who was the first judge of this judicial district, at about the middle of the last century.

His work, published in 1867, was a small volume entitled "The Upper Mississippi," of 460 pages. Copies of it are now quite rare. Only a part of it is devoted to descriptions of local remains, considerable space given to the effigy mounds of the eastern part of the state and to explanations based on the then accepted hypothesis of a race of mound builders.

Both his wide acquaintance in the district and the early date at which his studies were made, give to his work a high value.

Outside of his work and some notes by T. H. Lewis, which are largely based upon it, some notes by L. H. Bunnell of Minnesota concerning mounds opposite the village of Homer (his residence), an incidental notice of certain markings on a cliff at Trempealeau bay, and some notes of my own, are all that I can now refer to.

NUMBER AND DISTRIBUTION.

Judge Gale placed the number of mounds in Trempealeau county at between one and two thousand, by far the greater number being in the southern part, in the vicinity of Trempealeau.

This can scarcely be more than an estimate, and although I have never attempted an enumeration, I am confident that it is greatly in excess of the true number. I suspect that not a few natural elevations have been included.

The situation of Trempealeau is topographically peculiar. The Trempealeau bluffs until a comparatively late period (Quaternary) were connected with those of the Minnesota side of the river. The present course of the Mississippi was

up to that time the valley of a small tributary stream, the older channel, about five miles wide, being north of the bluffs.

This old channel is now filled from side to side with glacial sands and gravels, and forms an extensive and treeless prairie. This prairie contains no mounds, at least I have not met with any save near its terraced edge fronting the river, above and below the bluffs. Near the terraced edges, especially for several miles below the bluffs, mounds are of frequent occurrence; also on the south side of the bluffs at the base, on secondary spurs, or even at the extreme tops. Nearly all of those along the bluffs are of the class which I shall describe as tumuli. The more important mounds occur on or near the extreme eastern end of the bluffs, the great platform mounds to be described, being on the most easterly spur.

The most westerly of the Trempealeau bluffs is known by way of distinction as Trempealeau mountain and is an island separated from the main mass of the bluffs by Trempealeau bay. Although not as high as several of the other bluffs, it is very rugged and has considerable notoriety as a resort for rattlesnakes. Its peculiarities gave rise to the name Trempealeau.

There is a group of tumuli near its southeast corner, on an elevated shelf, also single mounds here and there.

The peculiar features of these bluffs have made them conspicuous and often mentioned landmarks since the first entry of the whites into the country. It is probable also when we consider how impressionable the aboriginal races are in regard to strange, unusual or striking aspects of nature, that for ages they may have been objects of special regard amounting at times perhaps to veneration, from the native races.

Considering that many of the mounds are small and almost duplicates of one another, a description of all would be of little value, and for the present at least impracticable.

THE CLASSES.

Classifying the earthworks on the basis of their more obvious external features we may distinguish them as tumuli, large oval mounds, linear embankments and tabular or platform mounds.

Tumuli.—This is a very numerous class and quite widely distributed. They are especially abundant in the vicinity of Trempealeau where they occur both singly and in groups of a dozen or more.

Characteristically the tumulus is a hillock of earth from two to four feet high and from ten to fifteen feet in diameter.

The nucleus of each tumulus consists of a heap of ashes two or three feet across and a few inches high. About the center of this ash heap are often found fragments of human bones not consumed during incineration. The concentration of bones about the center of the heap is not however, universal. In some notes of mine made over twenty years ago, I find the bones described as being widely scattered. In one of the mounds opened near "Fort Perot" a partly consumed oak log five or six inches in diameter was found. Implements or relics of any kind are not common.

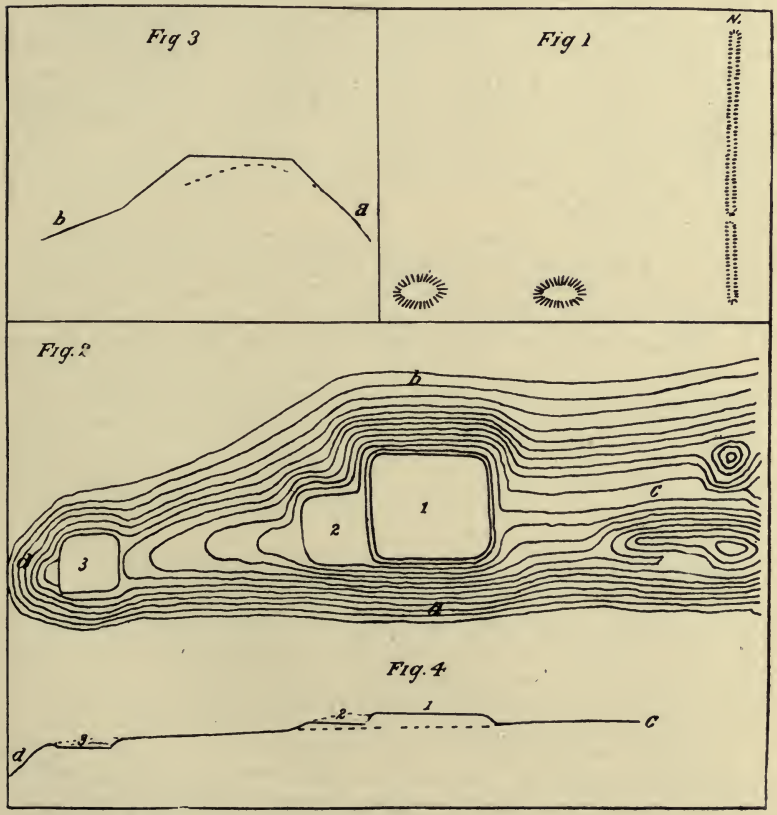

Fig 1 *Plan of mounds in Lewis Valley.*
Fig. 2. *Mounds at Tempealeau. The mounds with a portion of the top of the hill shown by contour lines*
Fig. 3. *Section from a to b.*
Fig. 4. *Section from c to d.*

Over this ashbed the mound was erected. Out of perhaps a dozen mounds excavated there was no essential variation from the type above described. In several instances I have continued the excavation below the original surface of the ground but without result or without finding any indication of a previous disturbance of the ground.

Oval Mounds.—These are much larger than the preceding being from ten to twelve feet high, forty to fifty feet long, and from two-thirds to more than two-thirds as wide. They are not notably common although it is probable that a careful search through the different valleys would reveal (or would once have done so) a considerable number in the aggregate. I have myself met with but three undoubted examples of the class, two in Lewis valley (Fig. 1), and one at Trempealeau. They are more or less closely simulated by certain natural elevations. In one or two cases the determination of the true character may have to await the opening of the mounds. Some of these natural mounds may have been included in early enumerations.

I have never excavated any of them. Some years ago I went to Lewis valley for this purpose but found that the entire group had been completely obliterated and I could not even locate their sites with certainty.

Permission has been granted me to explore one at Trempealeau, but to do so with that care and thoroughness which should characterize all such work would require several days, and I have not yet been able to devote so much time to it consecutively. This mound is on the farm of Mr. Wm. Nichols, who is well aware of its value, so that it is in no danger. He desired the excavations so planned as not to destroy the mound itself.

Effigy Mounds.—I have not myself met with any mounds which I should assign to this class. Judge Gale mentions them however, appearing to regard them as numerous. He notes man, frog, turtle, deer and perhaps buffalo mounds as existing at Galesville, in Trempealeau county, effigies of the deer being the most numerous. These I have never seen.

Linear Embankment.—In Lewis valley in La Crosse county, there formerly was a very interesting group of mounds the plan of which is given in Fig. 1, which is made from memory, but shows the essential features with reasonable correctness. The remains formed two sides of a quadrangle, the south side being composed of the two oval mounds already described. The east side consisted of an embankment perhaps

two feet high bv six or seven feet wide, perfectly straight, and as near as I can remember, about three hundred feet long. It was quite uniform in height and width, but was pierced by an opening a few feet wide, about one-third of the way from the south end.

Platforms.—In the village of Trempealeau, on the south side of Third street, is a mound of tabular form about four feet high bv twenty or twenty-five feet wide. The length is somewhat uncertain, a portion of the north end having been dug away in grading the street, and the south end having been graded down to admit of plowing.

So far as I am aware it has never been excavated.

On the top of a hill immediately west of my residence are three platforms whose relations are such that I think they quite obviously formed parts of a single plan. (See frontispiece.) Figure 2 shows by means of contour lines a general outline of the plan. Fig. 3 gives a cross section of the principal platform transverse to the hill, and Fig. 4 a section along the crest of the hill.

The base of the largest platform covers an area of about 108 by 122 feet. The dimensions of the level top are about sixty-five feet, north and south, by eighty feet, east and west. It is built up about six feet above the highest part of the hill, but on the sides, especially the west side, the filling is far greater, being eighteen feet from the base to the intersection of the produced surface plane. Situated on the most easterly spur of the bluffs it commands a particularly fine view to the eastward across the miles of space included in the Mississippi and Black river terrace plains.

The platform immediately adjoining it (No. 2), is about forty-five feet across and is raised above the top of the hill, most of the filling being on the west side. The distance between it and No. 3 is about seventy feet.

This last is somewhat smaller than No. 2 (30′x45′) and was formed by digging away the crest of the hill, the material so obtained being used to fill in the west side.

There is one characteristic which seems to show that there was between these platforms a carefully worked-out relationship, a straight line tangent to the south edges of platforms 1 and 2, is also exactly tangent to the south edge of No. 3.

It was perhaps in the effort to obtain this relationship that the builders chose a level lower than that of the crest of the hill.

Near the north end of the plan (Fig. 2) I have shown two of the large excavations from which were obtained the ma-

terials for the construction of platforms Nos. 1 and 2. The largest is about one hundred and forty feet long, thirty to fifty feet wide and five to eight feet deep.

Thus far but few implements have been found here. On the east side of the hill beneath No. 1, a few fragments of pottery (the red glazed pottery elsewhere noted) have been found, also a number of pebbles from the river drift, several of which were split.

On the southwest corner of No. 2 occurs a fine layer of gravel from the same source.

No excavations have as yet been made as I am unwilling to mutilate these works which are in themselves of more importance than anything likely to be taken from them.

Passing in review the various purposes for which these platforms might have been built, there is but one as yet suggested, which appears to satisfactorily explain their various features. It is that they had a religious purpose.

It is so commonly true as to be almost a rule that among nations whose religious worship involved much of the ceremonial, the careful attention bestowed on constructions of a religious character was greater than that applied to any other purposes. The peculiar location and emplacement suggest sun worship.

That this form of worship has been practiced in some portions of the Mississippi valley appears to be shown by independent evidence.

Methods of Burial.—In speaking of the tumuli, I have already described one method. The large oval mounds may perhaps represent another.

On the site of what is locally known as "Fort Perot," where the French commandant of that name passed the winter of 1685-6, I found what appeared to be interments of three different periods, superimposed the one above the other.

The uppermost was covered by a low mound not much over a foot high. The interment consisted of three bodies which had been burned but in a manner entirely different from that shown in the tumuli.

A carefully constructed bed of brushwood was made, on which the bodies were extended side by side, with their heads toward the east.

Other brushwood appears to have been placed over them, after which it was burned.

Such fuel and bones as remained unconsumed about the margin were left undisturbed and the whole covered with earth.

Considering that the methods here employed are quite unlike those of the natives as elsewhere seen and that they are remarkably like the classic methods as known and practiced in Europe, it is not unlikely that the French may have had something to do with it.

As the soil under the mound showed signs of disturbance, I continued my excavations and at a depth of about three feet found a single skeleton which had been buried in a sitting posture. It was not burned.

Still continuing the excavation I found at the depth of nine feet a group of seven skeletons crowded into a space not over two feet in diameter. The skulls were in juxtaposition and a piece of pottery had been placed on the top of the heap.

Although broken there was to be seen on the inside a layer of black carbonaceous looking material which may once have been food. A couple of perforated bear's teeth were also obtained.

The bones were promiscuously thrown together and I judged that many were missing. Possibly they had been burned before being placed in the hole. It is probable that they were not buried until long after death.

This grave does not appear to have been covered by a mound until the three skeletons at the top were so marked. Probably there are many such unmarked graves.

It will therefore be seen that one may recognize four or five different ways of disposing of the dead. We should perhaps not be justified in assuming that they represent the work of as many different tribes, but I think that we may reasonably conclude that more than one tribe is represented among them.

This is an especially interesting locality as well to the geologist as to the historian and the archaeologist, for the projecting point near the end of which these interments occur is the end of a ridge having the character of a glacial moraine, and as I have elsewhere shown, there are good reasons for thinking that it may be such, the glaciers having been local, for this is within what is commonly known as the driftless area. The excavation for the entire depth was around and between great masses of rock.

A somewhat interesting feature was directly associated with the French remains. Of the several hearths belonging to the post, the best and first discovered was double, the upper hearth resting on a layer of ashes which themselves rested on an older hearth. It is probable that the older hearth was

Perot's, the later was perhaps built by Linctot some sixty years later.

But the older hearth in turn rested on ashes which filled a bowl-shaped hole, several feet in diameter, which had likely been an Indian bake hole. About the largest group of tumuli lies only a few rods west of the post.

Although the results of exploration at this point have been of such interest, the casual visitor will experience a sense of disappointment, for there is little that appears superficially. An excellent view of the locality as a whole is found in the Wisconsin Historical collections (Vol. 16, p. 154). The triple burial described above was on the sharp point projecting into the slough near its head. The old post lay just back of this on the railroad. The point is more prominent than could be judged from the picture.

Village and Camp Sites.—Framing my opinion on such incomplete data as is at hand, I should say that the greatest center of population was in the Lewis valley, near Mindoro P. O. (Lewis Valley Corners), in the town of Farmington, in La Crosse county, and stretched along for perhaps half a mile eastward from the group of mounds shown in Fig. 1. For several years after the land was brought under cultivation the finding of implements was quite common, the best collection being made by a farmer named Arnold, who however is not now a resident of the valley. There were here also several mounds besides the ones figured, but being located on some of the finest farming land in the valley, all have shared the same fate. Were we to base our opinion on the number of mounds alone, we should have to assign to Trempealeau the pre-eminence as a center of population, for the mounds are far more abundant here than elsewhere in the region. There is, however, no corresponding abundance of implements. This circumstance is rather perplexing. The explanation may possibly be that the locality had something of a sacred character, being a place of resort for worship, and perhaps for burial, rather than the permanent residence of a large number.

Several miles below the town there is a village site which was occupied at a comparatively recent date. Temporary camps were abundant. In fact, the Indians still camp in the vicinity every summer for the hunting and fishing. There is also a cemetery now in use, the burial methods being largely copied from the whites.

Implements.—The implements thus far obtained in this region have been mainly such as were scattered about on the surface and naturally came into the possession of those who

first brought the land under cultivation. This has resulted in the formation of many small collections, but of no notably large ones. Many of these have been scattered, but many also have been preserved and may yet serve as a further index to the archaeology of the region. At present little more than a brief notice of them is possible.

Of the flint artifacts arrowpoints are the most numerous. The chert from the Lower Magnesian limestone affords an abundance of material all through this region. Quartzite is sometimes employed instead of flint, the material being probably derived from the northern part of the county where it occurs locally as a development of the Potsdam sandstone. It is more suitable than chert for the making of large implements, as it is more massive and breaks with greater regularity.

Celts are quite common and as a rule well fashioned, greenstone or some similar tough eruptive rocks such as could be abundantly obtained from the river gravels, being employed.

The same material would appear also to have been employed in the manufacture of axes, chisels, gouges and other of the heavier stone implements. Discoidals between two and three inches in diameter are occasionally met with.

Copper implements are relatively rare, perhaps because being in a driftless region there was not the same source of supply as in the glaciated regions, for it is probable that most or much of the copper at a distance from Lake Superior was obtained from transported masses found in the drift. But a very small number of pieces have been reported as found in local mounds.

As is commonly the case the resources of the region itself have largely determined the materials used for the making of implements, and some materials elsewhere employed such as lead, iron, hematite, catlinite, steatite, mica, obsidian, chalcedony and agate, do not appear, though this does not mean that exotic examples of some of these may not have been introduced.

The finding of pottery fragments is so common as to be but little regarded, and as they do not appeal to the average local collector, are rarely preserved. With such a dearth of available material no satisfactory comparisons can be made in the matter of form, composition or ornamentation with those of other regions.

Of the few specimens in my possession, two are tempered with crushed granite of a very feldspathic variety, the feldspar

occurring almost to the exclusion of the quartz; and four others exhibit shell tempering.

In several of the specimens the tempering material is not macroscopically identifiable, although a few small crystals of augite or hornblende are visible. Most of the examples show the same color on the surface as in the section, which varies from nearly black to a dark gray, but the shell tempered specimens are coated with a different color on the outside.

One of these is coated with a mere film of what appears to be red ochre, forming a glaze which reflects the light, the surface appearing to have been as smooth as our common tableware.

Only four of the specimens, representing three vessels, show any markings on the surface. One has upon it, just below the margin, two grooves, each about one-half inch wide, formed of impressed parallel wavy lines. Another exhibits shallow markings about one-quarter of an inch apart made by drawing some implement across the surface. Two others are marked below the margin with a single row of small indentations. Several of these are pieces of what must have been handsome vessels.

History.—The history of the French regime in Wisconsin (Wis. Hist. Coll., Vol. 16), brings out some interesting facts regarding the status of this region during that period. It shows an almost kaleidoscopic commingling of the tribes throughout the state. The weaker tribes seeking to avoid the Iroquois on one hand and the Sioux on the other. The western valleys are not assigned to any particular tribe, although it is evident that the Sioux controlled them. Such unsettled conditions have never been favorable to the carrying out of extensive constructional programs. I believe therefore that the more important constructions must have been long anterior to the coming of the French.

Aboriginal Evidences in Washburn County.

By A. H. Porter.

Archaeologically, Washburn county in Northwestern Wisconsin is, like a number of its adjoining sister counties, still an unknown region, being represented in Wisconsin records by an almost blank page.

It should therefore present a most alluring and interesting field for the student.

Careful investigation of the shores of almost any of its many beautiful lakes and streams is certain to reveal the location of aboriginal village and camp sites, planting grounds, caches, trails, graves and mounds and other antiquities of which a record should be made.

In compliance with the Society's request the author takes pleasure in presenting the following brief report of the evidences of aboriginal residence in the vicinity of Spooner lake.

In the July 18, 1903, issue of the Spooner Register, he caused to be published a short article, in which these evidences were mentioned and similar information from other parts of the county requested. This article has now been rewritten and additional data included.

The author's absence from home during a large portion of the year has made it impossible, as he desired, to further extend the researches in this district. He is particularly pleased to note the general activity in archaeological research now prevailing in many sections of Wisconsin under the auspices of the Wisconsin Society, and trusts that there may be found in Washburn county others besides himself, who, recognizing the educational value of this work, will be willing and able to lend a hand, to the end that a complete summary of its aboriginal evidences may be published.

EVIDENCES.

1. **Spooner Point Village Site.**—On the author's property on Spooner point and the immediately adjoining land of Lot 3, Section 27, on the south shore of Spooner lake, fragments of earthenware, flint chips, arrow and spear points and other indications of the former location of an aboriginal village have been found.

Connected with this site and lying between it and the tote road are no less than half a dozen distinct plats of corn hills, the whole comprising some three acres or more. A considerable period of time has probably elapsed since these fields were under cultivation, but they are still very well preserved.

The rows are about six feet apart and the hills about twelve inches in height. They generally extend in a northeast and southwest direction.

2. **Porter Village Site.**—On Lot 5 (SW. ¼ of SW. ¼ of Section 26), on property also belonging to the author, and about one-half mile southeast of the former locality, there was up to as late as the year 1880, a Chippewa Indian village.

Here at various places near and back from the shore of the lake are still to be seen the depressions which represent the cellars of their log houses. Cache pits and other evidences of Indian residence are also still to be noted. Only iron and other metal implements have been obtained from this site. An iron axe and copper kettle in the author's possession were taken by him from one of the cellars.

The last Indian to reside here killed a half-breed in a drunken brawl and was sent to the state penitentiary at Waupun, where he died.

The basement of his shanty can still be seen.

3. **Porter Mound.**—On the same property, immediately south of the village site, and but a short distance north of the south line of the section, is an oval mound, possibly an effigy, as it bears a slight resemblance to mounds of the so-called "turtle" type. This mound is twenty-five feet in length, fifteen feet in width at its middle and seven and one-half feet in height. It is constructed of a sandy loam, similar to the surrounding soil, and is overgrown with underbrush. Upon it stand a number of small oak and birch trees. It is headed northwest and is elevated about twenty feet above the lake level. It has not been disturbed.

4. **Spooner Road Planting Grounds.**—A short distance to the southeast of the above mentioned mound, and crossed by the new road to Spooner, are about two acres of land which were employed for the cultivation of squash, pumpkins and other vegetables by the Chippewa Indian residents of the village site already described. This plot of ground is now almost devoid of vegetation, indicating that many crops were taken therefrom, without re-fertilization.

All about the space grow blueberry bushes from which many boys and girls as well as Indians gather the fruit each year.

5. **Hazard or Twin Mounds.**—About 650 feet to the west of the last, and near the intersection of the tote or lumber road with the new road to Spooner (the south line of section 27), and on the property of Prof. J. T. Hazard, are two round

mounds. They are twenty-five feet in diameter and five feet in height and separated from one another by a distance of about eighty feet. These mounds have not been disturbed.

Hadden Mound at Spooner Lake.

6. **Hadden Mound.**—At a distance of about 250 feet southwest of the Porter mound (NW. ¼ of NW. ¼ of Sec. 35) on the property of Rev. J. W. Hadden, is a large round mound. It is located about 100 feet south of the newly opened road to Spooner, and between it and the tote road.

This mound is about thirty feet in diameter and twenty feet in height. Its steep sides and top are overgrown with blueberry bushes and other small trees and shrubs. On different parts of its surface are three excavations. From one of these, made in 1893 by Mr. Philip Bock, Mr. Geo. W. Harmon of Spooner, and others, a skeleton was exhumed, which is said to have been buried in a sitting posture. These remains were sent to a Chicago museum. An illustration of this mound is given herewith.

7. **Bowman Mound.**—On Lot 1 (NE ¼ of NE ¼ of Sec. 35) on the property of Prof. G. L. Bowman, is an oval mound, also bearing some resemblance to an effigy. This mound is thirty-five feet long, ten feet wide and about ten feet in height. It is about 330 feet back from and elevated about thirty or more feet above the south shore of the lake, and points in a northeasterly direction. It has not been disturbed.

8. **Narrows Indian Village.**—Occupying Lots 2 and 3, near the center of Section 26, on the north shore and near the head of the "narrows" of the lake, is a Chippewa Indian village of a dozen or more houses and about twenty-five residents, who exist mainly by their fishing, hunting, rice gathering and berrying.

Accompanying the village are small garden plots in which corn, beans, pumpkins and other vegetables are grown, and also a small burying ground of about twenty-five or more graves.

The chief of the village is an Indian called Johnson. Billy Arbuckle is another well-known character.

9. **Little Mud Lake Village.**—A second village is located on the shores of Cobog-go-gish-go-ah-gog, or Little Mud lake, a small body of water about ten acres in extent, a quarter of a mile north of Spooner lake and connected with it by a small stream or outlet. This village has been located here for about twenty-five years.

The dwellings are cheaply built log or frame houses. Accompanying nearly all of them is a tepee or shelter made of canvas, birch bark, or rush mats, where the inhabitants sleep. There is a council house, about thirty feet in length and roofed with birch bark. When used to lodge visitors this is divided into compartments by means of rush mats suspended from the roof.

Since this article was written, the old "Medicine Man" "Pebe" has died and a new medicine man or chief has been installed. He came here with great ceremony.

As this village is only twelve miles distant from the Lac Court O'Reille reservation, it is not difficult for company to reach them. They are provided with a few old wagons and poor ponies.

The women occupy themselves in weaving mats and baskets, and in making beadwork, and the men in fishing, hunting, sugar making, etc.

The graves near the village are roofed and have poles with flags or brightly colored bits of cloth attached to them at their heads, after the characteristic Indian fashion.

10. **Long Lake Mounds.**—There are a number of mounds on the shores of Long lake in the southeastern part of the county, but these the author has not yet been able to fully investigate.

Small collections of stone implements from the shores of Shell lake in the southwestern corner of the county are scattered through various Wisconsin cabinets.

Effigy Pipe, Author's Collection.

THE WISCONSIN ARCHEOLOGIST

Issued by the Wisconsin Archeological Society
Milwaukee, Wis.

Volume 4, Numbers 3 and 4.
April to August, 1905.

WITH TWO HUNDRED AND TWENTY-TWO ILLUSTRATIONS.

Edited by Charles E. Brown, Secretary and Curator.

Published by Authority of Law.

MADISON, WIS.
DEMOCRAT PRINTING COMPANY, STATE PRINTER
1905.

Wisconsin Archeological Society

MILWAUKEE, WIS.

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THE WISCONSIN ARCHEOLOGIST

A Quarterly Bulletin Published by the Wisconsin Archeological Society.

Vol. 4. MILWAUKEE, WIS., APRIL to AUG., 1905. Nos. 3 and 4.

PREFACE.

The following monograph of the "Aboriginal Pipes of Wisconsin" was prepared by the author at the request of the Wisconsin Archeological Society and is now presented for publication as a further contribution to the archeology of our state. Its preparation and the collection of the data and specimens upon which it is based, have occupied his leisure moments for some years back. This paper will treat of the aboriginal pipes of this State. No apology is offered, or excuse made, for errors in judgment or composition. The descriptions are abbreviated as much as practicable, no lengthy discussions entered into, and few stereotyped quotations used. The illustrations are new, which will be appreciated by those who are weary of encountering the same old cuts in each new archeological publication. The drawings are the writer's own. In the descriptions of specimens, when no other state is given, the location is always Wisconsin.

Pipes are among the rarest of all aboriginal artifacts, and the number and variety of Wisconsin finds described in this paper, will be a surprise to many, and can be taken as an indication of the great archeological wealth of the state.

To print a list of those to whom the author is under obligations, for the loan of specimens, and, when this was not possible, of tracings and photographs, as well as for their kindly

encouragement in preparing this treatise, would require more space than can be spared. Thanks are especially due to Dr. David Boyle of the Provincial Museum, Toronto; Mr. J. D. McGuire of Ellicott City, Maryland; Prof. T. H. Lewis of St. Paul; Mr. Clarence B. Moore of Philadelphia; Mr. Harlan I. Smith of the American Museum of Natural History, New York; Mr. Warren K. Moorehead of Andover, Mass., Dr. J. F. Snyder of the Illinois State Historical Society, and to Mr. Chas. E. Brown, secretary and curator of the Wisconsin Archeological Society, the Messrs. W. H. Elkey, W. H. Ellsworth, H. A. Crosby, Charles Quarles, H. R. Denison, Arthur Wenz, O. T. Lahman, A. S. Mitchell and Miss Clare Gruettner, all of Milwaukee; S. D .Mitchell of Ripon; J. P. Schumacher of Green Bay; Horace McElroy of Janesville; H. P. Hamilton of Two Rivers; Publius V. Lawson of Menasha; Rolland L. Porter of Mukwonago; J. S. Pickett of Pickett; C. T. Olen of Oshkosh; F. H. Lyman of Kenosha; F. M. Caldwell of Princeton; E. C. Perkins of Prairie du Sac; Dr. Alphonse Gerend of Sheboygan, and other Wisconsin archeologists who have assisted the author in various ways. He is also indebted to the Logan Museum of Archeology at Beloit College, Beloit, Wisconsin; State Historical Society; and to Milwaukee Museum, for permission to examine and study the specimens in their collections.

WISCONSIN
INDIAN HUNTING
GROUNDS
17th. CENTURY.

PLATE I.

THE ABORIGINAL PIPES OF WISCONSIN.

GEO. A. WEST.

THE WISCONSIN INDIAN TRIBES.

The fact that Wisconsin is exceedingly rich in aboriginal remains, in the form of mounds and artifacts, is not to be wondered at, when one considers that it is blessed with many of the conditions most favorable and necessary to human existence. The great barriers, Lake Superior on the north, Lake Michigan on the east, and the Mississippi river on the west, doubtless served, in a great measure, to protect its early inhabitants from attacks of their enemies; its numerous lakes and streams teeming with fish and fowl; its grassy prairies and luxuriant forests replete with game; its rich and productive soil, together with an abundance of material for the manufacture of implements in copper, clay and stone, satisfied all the necessities and desires of aboriginal man.

The "Badger State" as now known, was, within the space of 136 years, successively ruled by two kings, one state and four territories. It was under the government of France for 89 years, Great Britain for 35 years, Virginia and Ohio for 6 years, Indiana for 9 years, Illinois for 9 years, and Michigan for 18 years, finally becoming a state in 1848.

Its principal Indian tribes, at the time of the arrival of the earliest explorers and missionaries, belonged to two great linguistic stocks: the Algonkin (Algic) and Dakotan (Siouan).

On the islands of Green bay lived the Pottawattomies. The Menomonees occupied the west shore of Green bay, about the mouth of the river bearing that name. At the head of the bay resided the Winnebagoes. Down the Fox river but a few leagues were the homes of the Sacs, Foxes, and Mascoutens. The Chippewas, formerly a part of the original warlike tribe, better known as the Ojibwas, claimed the territory extending

along the south shore of Lake Superior. On the St. Croix river were scattering villages of the Sioux. The Kickapoos and Iowas lived in the southwestern part of what is now Wisconsin.

The Hurons came to avoid the Iroquois. The Ottawas, although not natives of the soil, appear to have been more or less permanent residents at various places in Northern Wisconsin and the Lake Superior region. The Illinois and Miamis appear to have had no permanent home here, they being simply straggling adventurers, having a partial residence in this territory.

About the year 1822, the Oneidas, Brothertons and Stockbridges immigrated from New York State, having purchased their lands, which lie principally in Calumet county, from the Menomonees and Winnebagoes.

The eastern part of what is now the state was a common battleground between the Dakotas and other tribes. In 1648 the fierce Iroquois ravaged the country of the Hurons with pestilential fury, leaving remnants of their stock here.

Mr. Henry E. Legler says:—"Wisconsin Indians moved with the seasons, following game or seeking the ground best adapted for growing corn. In the places where water and fish were accessible and where grain and root crops flourished most, they pitched their wigwams; in these places the toiling priests came to them, and in these places have been built the principal cities of the State."

"In most respects the life of the Wisconsin Indians did not differ materially from that of other Indians of allied tribes. Game was abundant and included many animals which are now extinct, or to be found only in the far West. On the prairies in the western part of the State roamed great herds of buffalo. Bear, elk, moose, antelope and even the woodland cariboo were the prey of the hunter, and the waters fairly teemed with fish" (Leading Events of Wisconsin History, p. 23).

The Jesuits, who were the early explorers of the territory now known as Wisconsin, were either natives of France or descendants of the French, who originally settled Canada. In contrast to the Spanish explorers of Mexico and Peru, who left a tale of murder and plunder behind them, these Fathers came among the Indians as brothers.

EARLY EXPLORERS.

History ascribes to Jean Nicolet the honor of being the first white man who set foot on what is now Wisconsin soil. His visit is pretty well settled to have been about the year 1634, only fourteen years after the landing of the Pilgrims at Plymouth Rock.

The next similar explorer to reach this land was Father Menard, who in 1660, established a Mission at La Pointe, Apostle islands. Then followed Claude Allouez, who came to Green Bay in 1669, and was the first Jesuit Missionary to explore the west shore of Lake Michigan.

In 1673 Father Marquette, a Jesuit missionary, and Joliet, a trader, a resident of Quebec, and five others coasted the shore of Lake Michigan to Green bay, then up the Fox and down the Wisconsin rivers to the Mississippi.

In 1679 Robert de LaSalle and with him Louis Hennepin, a member of the order of St. Francis, built the Griffin, of 60 tons, at Mackinac, (the first vessel that floated on the Great Lakes), to be used for the purpose of carrying goods to a trading post opened by him at Green Bay. She was caught in a storm on Green bay, the same year, and has never since been seen.

INDIAN WARS.

The French claimed, by reason of discovery, the country along the borders of the St. Lawrence, Great Lakes and the Mississippi; while the English claimed, by virtue of charter, the same lands. This state of affairs resulted in many bloody conflicts in which the English colonists were finally victorious. This country then fell to the English, and was held by them until the war of the Revolution. De Langlade influenced the Indians to join the French in harassing British settlements and posts, and to participate in the battle which resulted in Braddock's defeat.

In 1687, Perrot led several hundred Wisconsin Indians against tribes of Western New York. For 30 years previous to 1746, war between the French with their allies and the Foxes, in Central Wisconsin, was fought with a determination and animosity probably never equalled in this country. From 1826 to

1828, war was waged against the whites by the Winnebagoes. The Sacs and Foxes, who became confederates, wrested from the Illinois their possessions about the mouth of the Rock river, and in 1832 Black Hawk and his followers engaged the settlers of Southern Wisconsin in the last of the Indian wars fought upon the Wisconsin soil.

ABORIGINAL TRADE.

That channels of trade between the various Indian nations of America existed for a long time, is a well established fact. Prof. Perkins, in speaking of objects in copper, bone and shell, states: "Of course these things might have been obtained in war, but there is good reason to believe that trading of some sort was carried on among many different tribes all over the country"(Prehistoric Implements, p. 93). Specimens made from Lake Superior copper are found far to the south and southwest. Conch shells are frequently found in the mounds of Wisconsin. Hon. Publius V. Lawson has listed here about 50 obsidian implements. The material, doubtless came from the Rocky mountain region.

A neatly worked piece of amazon stone, in the possession of the writer, found in this state, must have been brought from the Rocky mountains by the Indians. A few specimens in bone, plainly bearing the ear-marks of the Northwest Coast Indian, have been found in Wisconsin.

Hunting and war parties traveled long distances from home. "Some of them informed me," said Carver in speaking of the Winnebago Indians, of Wisconsin, "that they made excursions to the southwest, which took several moons. An elderly chief, more particularly acquainted with me, said that about 46 winters ago, he marched at the head of 50 warriors towards the southwest for three moons. That during the expedition, while they were crossing a plain, they discovered a body of men on horseback, who belonged to the black people (Spaniards) whom the Winnebagoes attacked, and killed most of them, and took from them eighty horses loaded with silver." This is supposed to have been a caravan carrying silver from Colorado to Mexico, the silver they threw away, calling it white stones.

It is more or less certain that not a few of the aboriginal pipes found in Wisconsin are exotics. Yet only an occasional specimen can be safely classed as such.

Of the origin of the several examples of the Iroquoian trumpet-shaped pipe, found in Wisconsin, there can be no doubt.

The slate bird pipe shown in Fig. 83 is a well known New England type, the only example obtained here. The frog pipe illustrated in Fig. 90 is a common Tennessee type, and the same can be said of the effigy pipe shown in Fig. 72. The fact that no other pipes of the same form have been found in Wisconsin, would appear to substantiate the theory that they were not made here.

Barter, trade and conquest doubtless resulted in bringing to this region the models of many of our most frequent types of pipes. The aborigines were not slow in duplicating desirable forms. In a short time a single exotic might be the means of establishing a common domestic type. By passing from tribe to tribe in this manner, many types of pipes may have received their general distribution over a wide territory. Thus to locate the place where any of the common types originated would be difficult. The finding of numerous examples of a certain type in one locality is no certain evidence that the form originated there. Some greater tribe, hundreds of miles distant from the original place of manufacture, upon securing a model of a popular form of pipe, may have made thousands of duplicates to supply the demand.

The materials of which Wisconsin specimens are made do not assist, to any great extent, in determining the place of their manufacture. All varieties of stone employed by the Indians in the making of pipes, except Minnesota catlinite, are found within the borders of the state, either in ledges or in the glacial deposits. Minnesota pipestone was brought from the quarries in blocks of convenient size for carrying and afterwards manufactured into pipes and ornaments. This material may not properly be considered foreign, as the quarries were located in the country of the Sioux, which Indians at different periods occupied the greater part of what is now Wisconsin, and were possibly its first inhabitants and mound builders.

INDIAN TOBACCO.

Although the fact has been controverted, there remains but little doubt that the knowledge of tobacco and its uses reached the rest of the world from America. Reports of Columbus' first expedition in 1492, state that the inhabitants of the island of Cuba "carried lighted firebrands to kindle fire and perfumed themselves with certain herbs which they carried along with them."

The habit of snuff-taking was described by Roman Pane, who accompanied Columbus on his second voyage. Tobacco chewing was observed by the Spanish along the coast of South America, in 1502. Explorations of the interior of the continent showed the use of tobacco, especially by smoking, as universally an old custom, and often associated with religious and ceremonial rites.

The term tobacco is said to have originated from a two pronged tube, originally used by the inhabitants of San Domingo, for the purpose of inhaling smoke through the nose and called by them "tabaco." Benzoni, however, in his "Travels in America" (1542—56) says that the Mexican name of the herb was "tobacco."

The tobacco plant found its way to Spain from Mexico in 1558. The services rendered by Jean Nicot, a French ambassador to Portugal, in spreading a knowledge of the plant, has been commemorated in the scientific name of the genus Nicotiana. The plant at first was thought to possess wonderful medicinal qualities. Sir Francis Drake, and Ralph Lane, the first governor of Virginia, first carried tobacco to England in 1586. The habit of smoking was initiated by the English and spread with marvelous rapidity throughout all Europe.

There are about fifty species of nicotiana, all but two being of American origin, but of these the leaves of but few are used as tobacco.

The aborigines of the Great Lakes region, at the time of the Discovery, although inveterate smokers, did not use the tobacco of the West Indies, but employed native products instead. The substance generally employed was the green portion of the bark of the young red osier cornel or dogwood (*Cornus stolonifera*

Michx.) which when prepared they called "Kinnikinik." The leaves of the sumach *(Rhus glabra* Wood, and *R. aromatica Ait.)* were sometimes smoked.

A third variety of native tobacco consisted of the leaves of a low growing evergreen shrub called bearberry or leaf redwood (*Arctostophylos uva-ursi* Spreng) reported by Philip B. Wells, a botanist of Milwaukee, as found in Wisconsin as far south as Fox Point, Milwaukee county, in the Lake Superior country and west to the Yellowstone.

Wild tobacco (*Nicotiana rustica* L.) was cultivated to some slight extent by the Wisconsin Indians and still grows about the places they frequented.

Tobacco as we now know it, was introduced into this part of America by the whites. The Wisconsin Indians soon became slaves to its use, but owing to the scarcity, made a practice of mixing it with their kinnikinik. When Wisconsin Indians made sacrificial offerings to their manitous, tobacco was usually an important factor. Mr. Henry S. Pond of Green Bay, in an address in 1856, said: "An Indian in a pious fit, hangs on a tree a beaver or otter skin, bear or dressed deer skin, for a sacrifice to the Great Spirit, which remains there until destroyed, or until some Indian passes that way, wants and takes it, leaving a piece of tobacco in place thereof, which he may lawfully do."

ABORIGINAL PIPES.

TOMAHAWK PIPES.

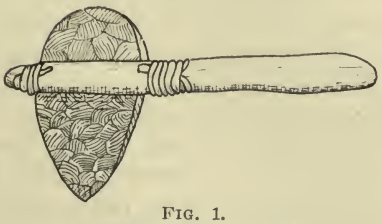


FIG. 1.
Pre-Columbian Tomahawk.

Previous to the advent of the whites in America, the tomahawk was a weapon used in Indian warfare, and was usually made with a stone head. Many of the so called discs and scrapers were doubtless fitted to handles and served this purpose. The head was sometimes made from the horn of a deer, attached to a handle in the form of a pickax, and used in the same way. A

large number of copper axes, found in Wisconsin, were doubtless used with the addition of a handle. The standard hatchet of the West Indies was made of shell, that of Alaska of nephrite, and that of the American Indian, of stone, iron, copper and bone. There are slight differences of form, some having a square top, and others being pointed, yet the general likeness in these implements prevails throughout the world.

The Indian for tomahawk, as given by Smith is "*tomahock,*" by Webster "*tomahaac,*" by Strachey "*tomohake;*" of American Indian origin, Algonkin "*tomchagen,*" Mohegan "*tumnahegan,*" Delaware "*tamoihecan,*" explained by Luscombe from the Cree dialect "*otomahuk,*" "knock him down," and "*otomahwaw,*" "he is knocked down."

It was the Indian custom to go through the ceremony of burying the tomahawk when they made peace, and to dig it up again when they went on the warpath; hence the phrase "to bury the hatchet" and "to dig up the hatchet."

Fig. 2 is the common form of trade axe. This is the tomahawk furnished by the whites to the Indians, and used by them with such terrible effect in their savage wars. It may not be out of place to go into the subject slightly as the tomahawk, so commonly mentioned, is often confused with the pipe tomahawk, and because the nationality of the former has a bearing upon that of the latter.

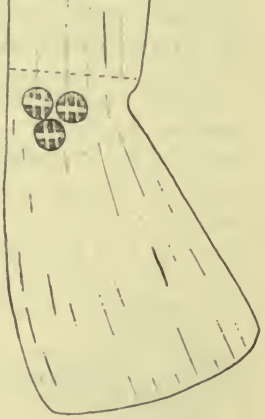


Fig. 2.
Trade Axe.

The trade axe usually has a broad cutting edge but is narrow near the socket. Some have a projecting poll; but most of them were made by bending over the flat iron, the two sides being brought together, welded, and drawn out into a blade, leaving a socket for receiving a handle. Dr. W. M. Beauchamp reports their having been found in great quantities throughout New York State.

Squier said of these: "Thousands are found in the western counties of the State," meaning New York. Champlain saw

them there in 1609. Dr. David Boyle reports the finding of hundreds throughout the Province of Ontario.

La Salle wanted 1,000 axes for trade at Fort Frontenac in 1684, which would cost seven or eight sous a pound, and would sell for thirty sous a piece.

Schuyler gave the Iroquois 300 hatchets in 1703. Dr. W. M. Beauchamp says: "When we consider the great quantities of axes that the English and Dutch both sold and gave to the Iroquois, and the universal prevalence in early years of the form known as the French Trade axe, we are led to believe that all were not French, but that there was a common European form two or three centuries ago, as it is in Germany yet. A large proportion, at least, seem to have been made at Utrecht. In any case most of the iron axes found on New York Indian sites passed through the hands of its colonists (Bulletin 55, p. 65).

Hon. Publius V. Lawson writes: "The iron hatchets (not pipe tomahawks) found by the hundreds along the Fox and Wolf rivers, marked or stamped with from one to three circles enclosing a cross, have been identified as having been made at Utrecht."

The pipe being one of the Indian's most sacred possessions, the white man was not slow to see that a combination of tomahawk and pipe, in shining metal, would make a most coveted prize, and one that offered many advantages to the simple-minded aborigine, and at the same time make him a useful, but more dangerous servant.

These weapons were made with either a hatchet or spear blade on one side, the blunt side of the head being formed into a pipe bowl, which communicated with a tubular hollow in the handle, thus forming a combination of tobacco pipe and tomahawk. The material of the head was usually of steel, brass or pewter. Those of brass had dovetailed or brazed in, a cutting edge of steel. Their graceful shape, together with the artistic ornamentation of the metal part by etching and inlaid work in silver and copper,—the wooden handle or stem studded with large brass headed tacks and ornamented by the burning in of fantastic designs, never failed to attract the Indian. Its possession made him more cruel and daring.

The red-man was not slow to see the advantages of the light

and strong product of white-man's ingenuity, as compared with the heavy stone implements of his fathers.

The English, French, Dutch and Spanish each lost no time in furnishing their Indian allies, throughout this broad land, with a bountiful supply of tomahawks, some of which were later buried in the brains of Jesuit Fathers, helpless women and little children.

The tomahawk pipe has certainly occupied an important place, and proven itself a most terrible weapon, in the hands of the savage allies of the whites, in the long and bloody Colonial wars of America. Of the time when this important implement came into general use, and the history of its manufacture, unfortunately, but little is known. Robert Rogers, in 1765, described a tomahawk with wooden head, which might indicate that the metal tomahawk was not, at that time, in general use in America.

WHO MADE THE PIPE TOMAHAWK.

While most of these metal artifacts are classed as of French, English, Dutch and Spanish origin, large numbers were made by white blacksmiths in the employ of the Indians, and some by the Indians themselves, who had been schooled in the art by the whites.

The giving to the Indians of guns and other metallic implements necessitated the furnishing of smiths to keep them in repair, and that many smiths were so furnished is substantiated by history. While the principal business of these blacksmiths was the repairing of guns, they doubtless also found the time to make many tomahawk pipes.

Records of treaties with the Indians all through the New England States show that the furnishing of a smith was of the highest importance to the savage. Dr. Beauchamp states: "Metallic implements made blacksmiths necessary to the Indians, and it became a matter of political importance whether the blacksmith was English or French." "As the Iroquois increased their use of guns, axes and kettles, they more and more required the aid of smiths" (B. 55, p. 62). On behalf of all in 1692, Oheda, an Oneida Chief, said. "We desire the blacksmith's Anvill that is at Onondage may remain there, and that there may be a Smith permitted to goe and live

there for the mending of our arms, and not to goe away againe so soon as they have Traded, as the other Smith did" (O'Callaghan, 3—844, quoted by Beauchamp, B. 55, p. 62).

When Lieut. James Gorrell took charge of western posts, previously occupied by the French, after delivering a speech soliciting the friendship of the Indians, he was requested, among other things, to furnish them a blacksmith (Gorrell's Journal, Oct. 11, 1761).

On August 6th. the following year, three chiefs with four ambassadors from the Avoy Nation, also demanded gunsmiths (Wis. Hist. Coll., vol. 1, p. 31).

Mr. Stillwell of Deadwood, South Dakota, believes that many Minniwaukan tomahawk pipes were made by native blacksmiths. In Wisconsin its first blacksmith, Joseph Jourdain, made rare and beautiful metal pipes.

Papers from the Canadian archives state that: "Lists of outfits commonly given to chiefs in making a treaty, usually contained one tomahawk pipe, while lists given to common Indians never contained one, which would indicate that they were given to Chiefs only" (Wis. Hist. Coll., v. 12, p. 102).

Hon. J. G. Pickett, who came to Jefferson, Wis., in 1840, states that he remembers that: "All chiefs, who could afford them, wore tomahawk pipes in their belts, which were frequently ornamented with a row of feathers along the under side of the handle." He thinks they were carried more as an insignia of office than as a hatchet.

Among hundreds of old orders for traders goods, examined by the writer, but few were found which included tomahawk pipes.

MANY OF BRITISH AND DUTCH MANUFACTURE.

The author is convinced that most of the metal artifacts found in Wisconsin, commonly attributed to French origin, were really made by the British and Dutch.

The finding of a silver brooch at Kaukauna, Wis., which was sent to the Scottish Antiquarian Society of Edinburgh for identification, as appears from a recent annual report of that society, would appear to confirm the theory that much of the flash metal

jewelry found throughout Wisconsin was made in the Lackenbooth Flats, at Edinburgh, Scotland.

Hon. Publius V. Lawson writes: "By lavish gift making, the British had the strong support of all the savage tribes of the Northwest, even after the Treaty of 1759, and up to the War of 1812. Through the wars all the Wisconsin Indians fought with them. The fur trade was also, by this means, directed through Canada to Great Britain" (Daily Northwestern, Oshkosh). Mr. Lawson further says: "When the Huguenots were driven out of France under Louis XIV, but few artisans were left, but the Dutch were always artisans and mechanics. I had concluded that the Dutch made and furnished the supplies for the French to trade, especially the metal goods."

"For the purposes of trade among the Indians, goods were obtained in Montreal; the merchants of Montreal obtaining them from Great Britain. Great Britain took possession of Canada in 1760 and of Mackinac in 1763, and through the traders, officers and alliance with the Indians, held virtual possession of Wisconsin up to 1816" (Letter to the author).

Old documents long preserved in the Selby family in Kentucky, state that: "Edmund Moran was furnished goods by the large mercantile establishment of Capt. Eben Selby & Co. of Fredrick County, Maryland, who were largely engaged in supplying goods for Indian trade." "The English Government reimbursed Selby & Co. for goods lost in the Indian outbreak of 1763." A letter from Edmund Moran to the firm of Selby & Co. states: "You may remember you desired me to engage goods to sell to the French, wholesale, etc.," which would indicate that the French dealt in British made goods (Vol. 8, p. 232, Wis. Hist. Coll.). Col. A. Lane Fox, quoted by Stevens, says that: "during the American War, the English were compelled to make iron tomahawks, after the native pattern, with a pipe bowl opposite the blade of the weapon, before the Indians could be efficiently armed as allies." Parkman often refers to demands of the Indians, when making treaties, for a blacksmith to serve their tribe. It is reasonable to suppose that smiths, furnished upon such requests, made many of these pipes from gun-barrels and such scrap-metal as they could obtain. This may account for many specimens of poor pattern and crude workmanship that have come under the author's observation.

Fig. 3 is a Jourdain pipe tomahawk, secured by Daniel Kellogg from an Indian chief at an Indian camp on the banks of the Crawfish river, near Watertown, Wis., in 1883. This pipe is 7½" long from the edge of the blade to the top of the bowl, and follows a type commonly found throughout the central section of Wisconsin and universally distributed from the Mississippi river to the Atlantic ocean and Canada. One side of its blade contains a copper inlaid crescent, the opposite side an inlaid bunch of clover leaves in brass; the crescent was the maker's mark, and was usually made of copper from an old French coin.

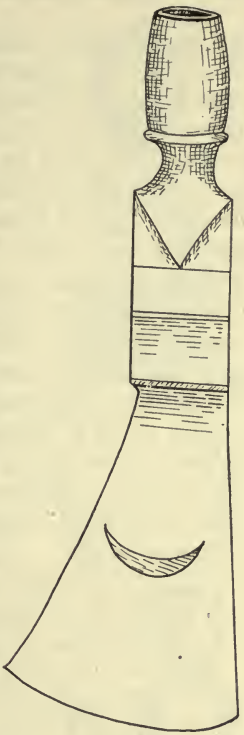


Fig. 3.
Jourdain Pipe Tomahawk.
Author's Coll.

Of the several types of pipe tomahawks found in Wisconsin, the *Jourdain* is the most sought after. Hon. Publius V. Lawson, in an article on this subject, says: "The first blacksmith to locate in Wisconsin was Joseph Jourdain, who came to Green Bay in 1798. He was an artist in the smithy art, and could fashion a razor or a sword. The pipe tomahawks which he made from old gun-barrels, are marvels of grace and beauty in design; the handles were made from iron-wood saplings, and served as stems of the pipes."

"Joseph Jourdain married a daughter of Michael Gravel, whose wife was the daughter of a Menominee Indian chief; his daughter, the beautiful creole Matilda Jourdain, became the wife of an Episcopal devine, Eleazer Williams, since claimed to have been the lost Dauphin, Louis XVII, of France" (Milwaukee Sentinel, May 17, 1901, condensed).

Mr. Lawson recently wrote:—"One of these pipes was unearthed in a plowed field at Butte des Morts. One is now owned by Dr. H. B. Tanner of Kaukauna. Mr. Wm. Sommerville of Menomonee, Mich., claims to own one, dug up in the garden of F. E. Teetshorn at Green Bay. Mr. Thos. R. Roddy, now chief of the Wisconsin Winnebagoes, is said to have a Jourdain hatchet

in his possession. The estate of S. S. Roby of Menasha owns one, and Thos. Jourdain told Mr. S. S. Roby, who, in his lifetime was a noted Wisconsin collector of aboriginal and historical relics, and who lived at Menasha, Wis., that the one in his possession was made by his father, Joseph Jourdain, who forged it by hand from a gun-barrel, and that he made many more" (condensed). Mr. Walter Wyman of Chicago has one of these pipe tomahawks in his collection, which he prizes very highly, as he secured it from one of Jourdain's direct descendants, and has a clear pedigree of it. A fine example in the author's collection secured from Mr. Albert K. Stebbins of Milwaukee, contains not only the copper crescent but two narrow rings of silver inlaid around the bowl, and the outlines of a heart, in silver, each side of the eye. A similar specimen is in the Museum of Natural History, New York City. As these pipes are identical in shape, of exquisite workmanship, each containing the characteristic inlaid crescent, it is fair to presume that Joseph Jourdain was the maker of each.

FIG. 4. Pewter Pipe Tomahawk. Author's Coll.

Fig. 4 is a beautiful pipe tomahawk, collected among the Cherokee Indians, over 50 years ago; its head is but 4" long, made of pewter, and each end of the handle or stem is mounted with the same material. This specimen was evidently intended for a pipe and not a weapon. In describing the Indians of New England in 1543, Roger Williams said: "They have an excellent art to cast their pewter and brass into very neat artificial pipes."

Fig 5 is a fine specimen in iron found on a battlefield of the Black Hawk War, in Southwestern Wisconsin. A similar example in the same collection (Cat. No. 2101), was collected by H. H. Hayssen. This type of tomahawk pipe is interesting, from the fact that the pike or halberd shape, in use during the Seventeenth Century, has been, to quite an extent, retained; and because of its wide distribution. Dr. David Boyle writes he might feel disposed to regard it as of French origin, on account of the resemblance the base of its bowl has to an inverted fleur-de-lis.

Mr. J. D. McGuire, in a personal letter states that he is inclined to feel insistent of its being French, and typical in form

of the lilies of France, but suggests it as but an individual opinion with only hypothesis to support it.

"Mr. Mooney, who passed much time among the natives of the southwestern portion of the United States, attributes this specimen to the Mexican or Spanish type" (McGuire, p. 467).

Fig 6 was once the property of "Growing Grass," medicine man of the Blackfoot Sioux. This specimen has a heart-shaped figure cut through its blade, and is further ornamented with numerous dots. These are irregular in size and depth, and stamp it as hand made. It was possibly used exclusively for ceremonial purposes, and its appearance probably secured respect and added mystery to the medicine man's antics. Its shape suggests the fleur-de-lis pattern, and many things about it bespeak the skill of some native smith in an endeavor to surpass the work of others.

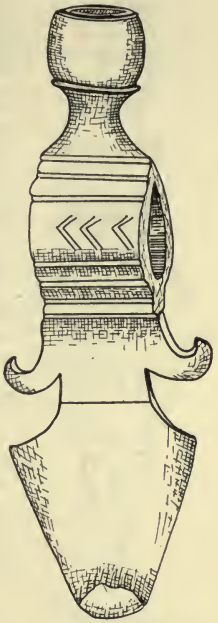


FIG. 5.
Iron Tomahawk Pipe.
Mil. Pub. Museum
Cat. No. 2762.

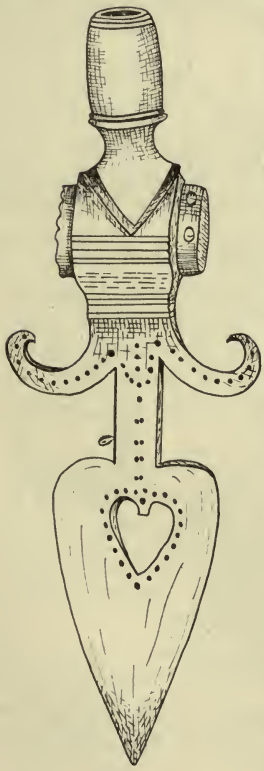


FIG. 6.
Tomahawk Pipe.
Mil. Pub. Mus., Cat. No. 2104.

Two specimens were seen by the author, among the Musquito Indians, on the Segovia river, Nicaragua; but these may have come from British Honduras not far distant. Mr. McGuire mentions a pipe of this type in the U. S. National Museum, (Cat. No. 153013), and another somewhat similar, in the same collection (Cat. No. 8363).

Fig. 7, known as the Minniwaukan type, is one of the most graceful and

FIG. 7.
Minniwaukan Type.
Author's Coll.

artistic of metal tomahawk pipes. The ornamentation of the blade, in some specimens of this type, consists of incisions in the metal, of star and crescent-like figures, with notches around the eye, reaching down the upper angles of the blade. In others, one large star accompanying a cross or crescent, is cut through the blade; the crescent may have been calculated to represent the new moon, which, together with the stars, might tend to awaken in the savage a spiritual superstition, connecting the weapon with one of his gods, and suggesting its use when his foes were wrapped in their robes of slumber.

The spear-shaped blade is symmetrical, thin, and finely tempered. The bowl is usually about 2″ in length, and has one or more rings in relief, encircling it. The handle is long and ornamented with large brass-headed tacks, and prominent notches.

The head of the specimen shown above is 10⅛″ long. All of the examples of this type are practically of the same length, with the same general style of ornamentation. Each of the stars on the blade has a small circle for the center with an equal number of projecting points. The crescents are of uniform size, and indicate that they were made with a die.

This specimen was collected by Mr. Brunnor, an Indian trader of Fort Totten, Devils lake, North Dakota, who presented it to Dr. M. B. Warren of Carrington, of the same state; and was by him presented to Mr. W. H. Ellsworth of Milwaukee, Wis., and by Mr. Ellsworth to the author. This weapon was carried by Chief Iron Heart, through the Minnesota Massacre.

Mr. Stillwell of Deadwood, South Dakota, writes that he has a Minniwaukan pipe tomahawk in his collection, made by an Assiniboine blacksmith at Pine Ridge agency—and that in his opinion all examples of this type of pipe, that are well preserved, were made by Indian blacksmiths.

A specimen in the United States National Museum (Cat. No. 23728), collected by Maj. Paul Beckwith at the Devils lake, North Dakota, much resembles the one above shown.

Mr. McGuire states that: "This type is commonly attributed to the French, but with little apparent authority, though the presumption may well be correct, for we know that pipes from their shape and ornamentation were attributable to their proper tribe, and it is most natural that the English and French should have armed their allies in such a manner as to render them easily distinguishable from their enemies" (p. 466).

An old Indian chief on the Sioux reservation near Devils lake, informed the author that his father's people obtained this style of tomahawk from the French when his tribe lived in Wisconsin. It seems to be limited to the territory now or formerly occupied by the Sioux Indians. Minniwaukan, Devils lake, North Dakota, being the location which has produced nearly all the examples of this type of tomahawk pipe, probably accounts for the name by which it is designated.

FIG. 8.
Minniwaukan Type.
W. H. Middleton's Coll.

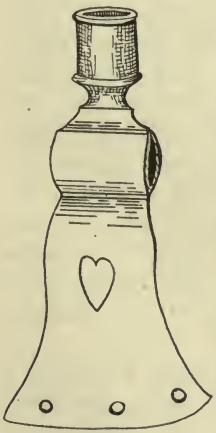


FIG. 9.
Tomahawk Pipe.
Author's Coll.

Fig. 9 is a tomahawk pipe of battle-axe form, made of iron, and found at Montello, Wis. This specimen is 7½" long, its blade being perforated with 3 holes and a heart-shaped figure. The form of the mortel-de-fer, used by horse soldiers of the middle ages, has been largely retained. Feathers and other ornaments were sometimes tied to the holes in the blade. The axes of the South African natives generally have semi-circular or crescent shaped blades. Barter and trade as well as emigration, accounts for the finding of many of these implements far from the original places of distribution; the goods of the trader preceded him into the dark and forbidding recesses of the wilderness. A tomahawk pipe of this type, in the collection of the United States National Museum (Cat. No.

13515), is referred to by Mr. McGuire, (p. 467), as possibly being of Spanish type, the curved blade being typical of the battle-axe used by the Spaniards. The absence of proof to the contrary may substantiate this theory.

FIG. 10.
English Type of Tomahawk Pipe.
Author's Coll.

Fig. 10 is a most graceful form of tomahawk pipe, collected by Mr. W. H. Ellsworth, at Devils lake, North Dakota. The head of this pipe was cast of brass, but contains no trade mark of its maker. Into the blade was dove-tailed, not brazed or soldered, a cutting edge of steel. The bowl is acorn-shaped. The brass portion is 5¾" long, elaborately chased, and otherwise decorated by deep incisions in the metal. When new and polished it must have been, to the savage, a much coveted prize. The Milwaukee Museum has one in its collection (Cat. No. 2108), a Wisconsin find.

Mr. E. C. Perkins, of Prairie-du-Sac, Wis., reports the finding of 2 brass pipes. One was unearthed by Mr. Bradbury Robinson, while grading down two mounds on the S. E. ¼ of the N. E. ¼ of Sec. 36, within the city limits of Baraboo, Sauk county, Wis.; the other plowed out by Mr. Oscar Van Valkenberg, on his farm but a few miles from the place where the first mentioned was discovered. Mr. Perkins has lived in that vicinity for 57 years, and knew of but one other tomahawk pipe having been found there, it being of iron. A brass pipe of similar shape, found in Cattaraugus county, N. Y., is now in the U. S. National Museum. Another, in the museum of the University of Pennsylvania, was found in California.

A drawing of the Robinson pipe furnished by Mr. A. B. Stout of Baraboo, shows the specimen, exclusive of the bowl which is broken away, to be 7" long, terminating bluntly, and indicating that a cutting edge was originally brazed on. The blade is 3½" wide and differs in design and ornamentation from the type under consideration.

Mr. David Boyle, decribes one of these pipes, in the George E.

Laidlaw collection, on deposit in the Provincial Museum, Toronto, found near Balsam lake, Canada, and refers to it as "a piece of honest work, beautiful and useful." He states that "tomahawks of this kind are usually supposed to have been for presentation to chiefs and leading braves, but no doubt many of them were exchanged for peltry" (1897–98, Rept. Prov. Mus., p. 31).

He writes:—"I suppose the reason for the diversity of patterns on these objects is owing to the fact that the designs were wholly produced by hand. For trading purposes the British (not the English), French and Dutch traders were not so much concerned in producing anything of a national type, as to supply the Indian with the kind of things they thought the Indian would like, and the probability that in a matter of this kind patterns were not copyrighted, but used indiscriminately, for the purpose in question."

Fig. 11, another type of tomahawk pipe in iron, probably of British make, is 9″ long, and was found in Marquette county. This type has an acorn-shaped bowl, and contains less ornamentation than does a very similar one of Dutch production. An example in the author's collection, found on the site of old Fort Winnebago, Columbia county, is but 6½″ in length and badly rusted. Specimens of this pattern are usually badly rusted which would appear to substantiate the theory that most of them, date back to the time of the French and Indian wars. Out of 20 examples examined by the author, but one seems to have been cast. No two were of the same size, or alike in ornamentation, yet the same general form prevailed in all. It seems certain that while some of the tomahawk pipes made by the Dutch and British, who sold them to French traders, reached Wisconsin, the great distance they had to be transported made them expensive and that a large percentage of the pipes of this class, now found here, were made by local blacksmiths, using the standard types for models. Four pipes of this variety, recently offered to the author by a

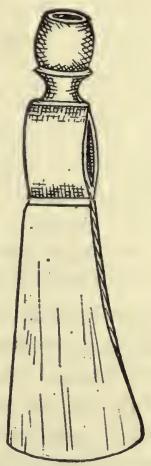


Fig. 11.
Acorn Type of Tomahawk Pipe.
Author's Coll.

dealer, were found, upon careful examination, to have been lately made of cast iron.

Mr. David Boyle attributed specimens with the acorn-shaped bowl to British make. Mr. McGuire in a recent letter states:— "I think Dr. David Boyle has the correct view as to the acorn type, however, I think the subject well worth study."

FIG. 12
Tomahawk Pipe.
Author's Coll.

Fig. 12, found near Menasha, Wis., is made of iron, 8½" long, finely wrought, and graceful in form. The neck of the bowl is octagonal in shape, a peculiarity of this type. Circles on each side of the eye were probably made to represent the eyes of some animal or bird. The incised lines running back from the bowl, each side of the eye, are paralleled by a line of faint dots on each side, giving it an artistic finish. A similar specimen in the collection of the Hon. J. G. Pickett, was found in an Indian grave. The tomahawk pipe is most frequently found in Wisconsin, along the shores of the Fox and Wisconsin rivers. These rivers being the canoe route that early explorers and traders made use of on their way from Green Bay to the Mississippi and beyond.

Fig. 13 is a very modern type of tomahawk pipe. This specimen was obtained from a Sioux Indian. It is 9¾" long; the blade, which is 4½" broad, is perforated with two round holes and a heart-shaped figure. This example was but slightly ornamented in its original shape, the perforations of the blade having been made after it left the hands of the maker. It is said to be of British origin, and was obtained by the Sioux in trade.

FIG. 13.
Siouan Tomahawk
Pipe.
Author's Coll.

Another example of this type, in the author's collection, was plowed up in Northern Illinois. One in the Milwaukee Museum (Cat. No. 2102), contains the heart-shaped perforation.

Fig. 14 is closely allied to the pipe shown in Fig. 13, and is a very clever piece of recent Indian work in stone This specimen was procured by Mr. Herman S. Wilkenson from an Indian chief at Le Vorn, Minn., in 1880; it is made of beautiful, dark red catlinite, obtained from the famous pipe-stone quarries of that state. The drilling of the bowl and stem-hole are plainly indicative of Indian make. This specimen is 5½″ long, and was doubtless patterned after the Siouan metal type before noted. Owing to the fragile material of which it was made, it could not have been intended as a weapon. A similar specimen is in the collection of Gen. Gates P. Thruston of Nashville, Tenn. (See Fig. 114, p. 210, Antiq. of Tenn.); Mr. Charles Bodenbach, of Milwaukee has an example that exceeds Fig. 14 in interest its blade containing a heart-shaped perforation.

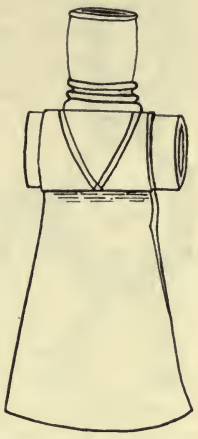


Fig. 14.
Catlinite Tomahawk Pipe.
Author's Coll.

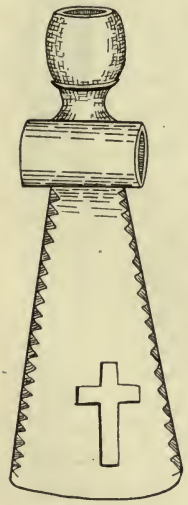


Fig. 15
Iron Pipe Tomahawk.
Author's Coll.

Fig. 15 is a specimen of the cross-form of pipe tomahawk. Prof. T. H. Lewis reports one having been found near Prairie du Chien and another at Green Bay. A third was plowed up in the town of Norway, Racine county. This style of pipe is usually highly ornamented, and often contains a perforation of the blade, in the form of a cross. The part containing the eye projects for some distance on each side of the bowl making the pipe suggestive of a cross. In one example this projection was sharpened to a point. The general shape of this class of pipe tomahawk would suggest British make for French traders. A large number of modifications of the several foregoing types, probably made by native smiths, have been found in Wisconsin.

Fig. 16, is 6″ long, made of brass, with a steel lance-like point brazed to the blade, and a similar sharp point of steel set into the top of the handle, making it capable of being used to thrust or strike with. This

FIG. 16.
Tomahawk Pipe.
Mil. Pub. Mus. Cat.
No. 2106.

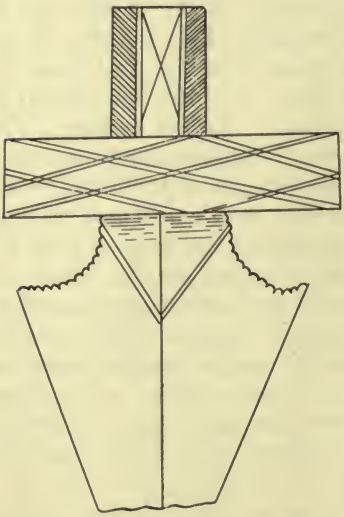


FIG. 17.
Catlinite Tomahawk Pipe.
Author's Coll.

is a strongly made weapon, and heavy enough to be thrown with accuracy for a long distance. No other example of this type has come to the author's notice.

Fig. 17 is a tomahawk pipe made of dark red catlinite, an interesting form, retaining in stone the pike and halberd style of the Spanish type. This example was plowed up by Mr. R. R. Jones, near Bangor, La Crosse county. The point of this specimen is missing. The presence of file marks indicate that it was made after the advent of the whites, but the workmanship is plainly indicative of Indian manufacture. It is too fragile to have been intended for a weapon.

Fig. 18 is of iron 12" long, evidently hand-made. It has the acorn-shaped bowl but its blade is extended to a length beyond all proportion and strongly suggests a dagger. About the eye and base of the blade are many deep, triangular ornamental depressions apparently cut

FIG. 18.
Tomahawk Pipe,
Dagger Type.
Mil. Pub. Mus.
Cat. No. 2105.

with a chisel. This specimen was doubtlessly fashioned by some pioneer smith to please the fancy of some cunning medicine man. Being too awkward and unhandy for general use, it was possibly used for ceremonial purposes only, as might be said of most exaggerated examples.

OTHER METALLIC PIPES.

Other forms of metal pipes, although not so frequently found as are those of the tomahawk type, seem to be as widely distributed. Mr. J. D. McGuire, (p. 459) illustrates one of iron from Cherokee county, North Carolina, and mentions one of copper from Stark county, Ohio. Dr. W. M. Beauchamp (B. 55, p. 56) describes half a dozen from New York state, and the writer has located at least a dozen found in Wisconsin. These pipes usually resemble the English, French or Dutch forms of clay trade pipes, and are made either of iron, brass, copper or silver. None of the Wisconsin finds exhibit a distinctive maker's mark. Most metal pipes were doubtless made by white men, yet Roger Williams referred to the quickness with which the New England Indians learned to cast metals, even in the form of pipes. Mr. Beauchamp (B. 55, p. 56) doubts their ability to cast brass. Dr. J. F. Snyder writes that lead pipes were cast in Illinois by the Canadian French. One of his childhood toys was a facsimile of the lead pipe shown in Fig. 24, made by an old Canadian voyager, who occasionally wintered at Cahokia, St. Clair county, Ill., near which place Dr. Snyder was born and raised.

Among the thousands of native copper implements and ornaments found in Wisconsin, the author has failed to find a single pipe made from this metal. A few copper tubes have been found, but not one that could be classed as a pipe.

Bullet molds of stone, formerly in the Hoy collection at Racine, were found with a gravel pit burial; a similar pair of molds were recently unearthed on a village site on the shore of Lake Michigan, while stripping at the quarries of the Lake Shore Stone Company, Stone Haven, Wis. These would indicate that the Wisconsin Indians had learned the art of casting in lead.

Mr. Beauchamp states that bullet molds occur on Iroquois sites 250 years old. Bars of lead were often given to the New Eng-

land Indians in trade. The Wisconsin tribes mined it in quantities in Southwestern Wisconsin.

Henry Hudson reports having seen copper pipes in use by the savages in New York in 1609. Mr. Beauchamp (B. 55, p. 56) states that none of these are known, and that those found on Indian sites were probably made by white men.

Mr. Beauchamp (B. 55, p. 57) describes an interesting silver pipe, owned by Mr. Walter C. Wyman of Chicago, which bears on its bowl the simple inscription: "Presented by Gov. Tompkins to Skenandoah." DeWitt Clinton visited the old chief of Oneida in 1810, and said: "He is entirely blind but his hair is not gray. He smokes and can converse a little in English. He was highly delighted with a silver pipe that was given him by Gov. Tompkins." The latter held his office from 1807 to 1817, and the pipe is now nearly a century old. Mr. Wyman says: "The lettering is very much rubbed, but is legible." The pipe was obtained with the wampum belt of the Oneida treaties, directly from old Skenandoah, the chief of the Oneidas in Wisconsin, who died three years ago. He was the grandson of the owner of the pipe, and was about 90 when he died." In the same article is a quotation from Sims (p. 43), describing another silver pipe carried in 1867 by an Indian chief named "On-wan-on-shy-son," of the Province of Ontario, Canada. This pipe is said to have descended through several generations of sachems, and had become among them an evidence of the bearer's dignified position. On the plate beneath its stem was engraved a history of its origin, and the inscription: "As a testimony of their sincere esteem," and on its reverse: "To the Mohawk Indians, from the Nine Partners of the tract near Schoharie, granted in 1769."

Mr. Beauchamp states that "when the trade with the Dutch and French opened more fully in the early part of the 17th. century, metallic implements and ornaments were in great request. One had only to look over old bills of supplies and purchases to see how great was their quantity and variety. For ornamental purposes, bronze, brass, and nearly pure copper long had sway. About the beginning of the 18th. century, silver began to take its place, and for 150 years held its own as a fashionable metal" (B. 55, p. 15).

Through barter and trade and the pushing into the wilderness of the fearless Jesuits, and roving fur-traders, these allur-

ing products of white man's ingenuity reached the aborigines of Wisconsin, far ahead of the settler's cabin; and they doubtless frequently preceeded the explorers of history.

In refering to the payment by the Government, of $90,000 to the Chippewas at La Pointe, Wis., in 1855, Mr. Richard F. Morse states that they possessed: "thousands of pipes of varied kinds and sizes, pipes of clay, pewter, wood, iron, pipes in hatchet-heads attached to canes, long and short ones, elegantly embelished with feathers, embroidery, and Indian art, etc." (Vol. 3, Col. Wis. Hist. Soc., p. 358).

Most of the pipes referred to by Mr. Morse, were doubtless of white man's make for Indian trade, as at that date pipe-making by the Indians had become practically a lost art.

Tomahawk pipes, most metal pipes, and several types of stone pipes which are not pre-Columbian, were in use among the savages for nearly two centuries. Mr. Beauchamp says, "They were features of Indian life," "and in order to understand that life, we must know something of what was in daily use." They are now records of the past which will be valued the more as time goes on. Their preservation should be encouraged and the data respecting them recorded.

Fig. 19 is a badly rust-eaten, primitive metal pipe made of sheet iron, with edges brought together and brazed. The bowl is 1½" high, cone-shaped with a flat base; the stem 1½" long, and set into the bowl at right angles. This interesting specimen was plowed up in the town of Deloma, Sauk county. An iron pipe of the same form, except that the bottom of the bowl is extended to a point, is reported by Prof. T. H. Lewis, as having been found near Portage, Wis.

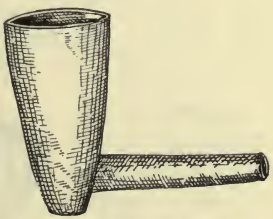


Fig. 19.
Brazed Iron Pipe.
Author's Coll.

A very similar one (Cat. No. 12260, U. S. Nat. Mus.) was collected in Cherokee county, North Carolina, by Gen. Thomas A. Duncan. It is said to have been found in an old shaft supposed to have been one of the workings of De Soto in that state, but more likely is of English origin.

"The tobacco pipe of the famous Miles Standish, who came over in the *Mayflower*, and which was smoked by him on the day

of his death, is referred to as a little iron affair, about the size and shape of a common clay pipe, and probably just such an iron pipe as is often found in European countries, and commonly, but erroneously, the writer thinks, attributed to the Roman period'' (Quoted by McGuire, p. 459, from Antiquity of the Tobacco Pipe in Europe). Mr. McGuire states that he would suspect a much more recent period than that of De Soto as the date of this pipe, and either the French or English as its origin, probably the latter. This view is strengthened, he writes, by the finding of a steatite pipe from Westerly, Rhode Island, the bowls of the two pipes, except in material, being identical (p. 460). The writer fails to see why the steatite pipe could not have been copied after a pipe of De Soto's time as well as after one of later date.

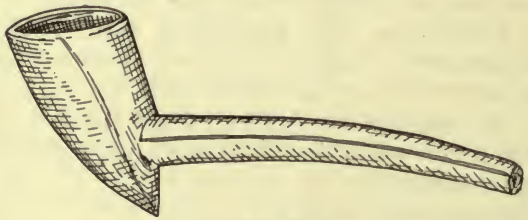


FIG. 20.
Brazed Iron Pipe.
Author's Coll.

Fig. 20 is a graceful form of metal pipe found at Brown Deer, township of Granville, Milwaukee county, and is doubtless of British make. This specimen, now much rust-eaten, is 5" long, with a cone-shaped bowl attached to a slightly curved tubular stem. It is made of two pieces of sheet wrought iron; the edges of the bowl over-lap and are neatly brazed. The edges of the stem come squarely together, and are also brazed.

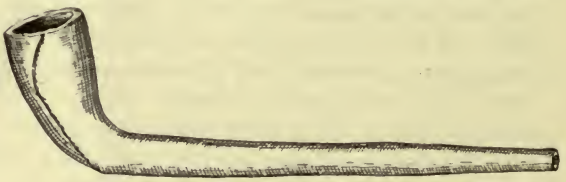


FIG. 21.
Iron Pipe.
Author's Coll.

Fig. 21 was found by a farmer while grubbing out a stump on a farm in the township of Freedom, Sauk county, in 1888.

This pipe is 6″ long and made of wrought iron, bowl and stem of one piece, the edges brought squarely together under the stem, while at the upper part of the bowl they over-lap and are slightly welded. Its long stem and graceful shape remind one of the clay trade pipe. It is probably the work of a native smith.

Fig. 22, taken from a mound located between Beloit and Janesville, Wis., is 4″ long, made of malleable iron, apparently from the barrel of a musket. The bowl and stem are of one piece, with edges welded. In shape it resembles the English trade pipes of clay. The bowl is exceptionally large, the stem hole very small. It is probably the work of a native smith. Prof. T. H. Lewis reports the finding of a similarly shaped iron pipe near Prairie du Chien, Wis., the only difference being in the absence of the heel.

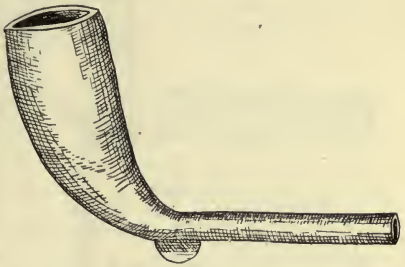


Fig. 22.
Iron Pipe.
Author's Coll.

Fig. 23.
Iron Pipe.
Author's Coll.

Fig. 23, a peculiar metal pipe found in the town of Norway, Racine county, is 5½″ long, made of a wrought iron tube, and showing no signs of welding or brazing. The bowl is quite thick, the stem is worked down thin and now rusted through, (especially on the sides and top) where the metal was filed away to give the stem a square form. Three rings extend around three sides of the end of the stem, and a small triangular projection, ornaments its top near the rings. The point where the metal was cut away to allow the bowl to be brought at right angles to the stem, is close fitting, but can be sprung away, showing no evidence of brazing or welding. One peculiarity of the stem-hole is that it is nearly as large throughout as the bowl

cavity, which would indicate that the pipe was made from a piece of iron tube, probably a gun-barrel, and intended to be used with the addition of a detachable mouthpiece. There is little doubt but that this pipe is the work of a native smith.

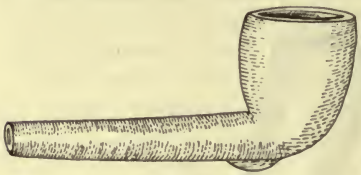


FIG. 24.
Lead Pipe.
Mil. Pub. Mus. Cat. No. 133.

Fig. 24, a fine specimen of cast lead, found 10 feet below the surface at Little Traverse, Wis., is 13″ long, an inch high, and in the form of the British trade pipe. Unfortunately there is no information as to the condition of the ground where this specimen was unearthed.

Fig. 25, from Marquette county, is of cast lead, with a cone-shaped bowl, an inch high, set at right angles to a stem 2″ long. Prof. T. H. Lewis reports a lead pipe of this type with a square top gradually tapering to a rounded bottom, as found near Prairie du Chien, Wis.

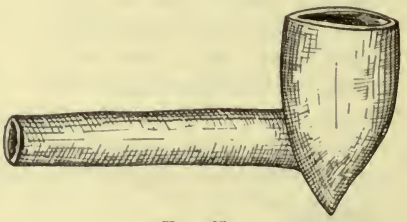


FIG. 25.
Lead Pipe.
A. D. Mitchell's Coll.

Fig. 26, from Waupaca county, is of cast lead, with cone-shaped bowl, an inch high, at right angles to the stem. This is a very small pipe, yet shows considerable use.

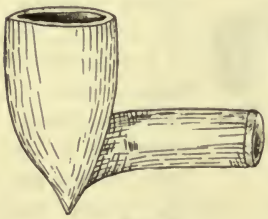


FIG. 26.
Lead Pipe.
F. M. B. Call's Coll.

Fig. 27, from Vernon county, collected by W. H. Elkey, is of cast lead, and in shape and size much resembles the bowl of the ordinary clay pipe. This example is nearly 2″ high and was cast in a rough, irregularly shaped mold.

Fig. 28, plowed up on the farm of Mr. R. Reynolds, Sec. 4, Mt. Pleasant, Racine county, in 1850, is interesting because of its having been found near the location of the first trading post established in that county. This specimen is 3½″ long, of Siouan type, and shows evidence of having been cast. A similar example in the

same collection from Fond du Lac county, was found by William Bush in 1875, and is ornamented on the bottom of the base by nine notches crossing at right angles, resembling when viewed from the side, the teeth of a rip-saw. An encircling band at the end of the stem contains several pairs of dots or shallow drill holes.

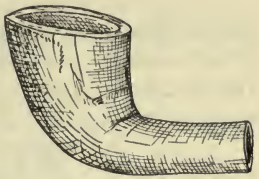


FIG. 27.
Lead Pipe.
Author's Coll.

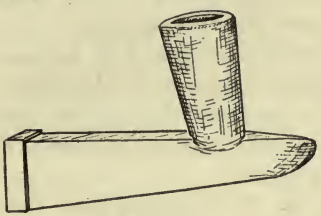


FIG. 28.
Lead Pipe.
Logan Coll., Beloit College.

The Logan collection also contains a lead pipe 6″ long, of precisely the same shape as the iron one shown in figure 20, but with the addition of the characteristic heel plate of the English trade pipe. Its bowl cavity is small, has a perforation through one side of its base, probably the result of over heating while in use, and was evidently cast in a well prepared mold.

All of these lead pipes were doubtless cast within the present limits of Wisconsin, during early historic times.

In the Wisconsin Historical Society's collection at Madison, is a cast lead pipe of the Siouan form, unfortunately without data.

An urn-shaped lead pipe with merely the suggestion of a stem, calculated for the receiving of a mouth piece of wood or bone, was found near Prairie du Chien, and another of lead, with stem at right angles to the bowl, the front of the bowl being carried down straight, was found near Portage, Wis.; both reported by Prof. T. H. Lewis. Pipes of lead were at one time quite common among the Indians about the lead regions of Southwestern Wisconsin but, because of their easy destruction, few are to be found in the cabinets of collectors.

CLAY AND POTTERY TRADE PIPES.

The weight of authority seems to favor the belief that pipes were not known to the Europeans previous to the Discovery. As to the date of the first manufacture of clay pipes in England, Llewllynn Jewitt wrote: "In the neighborhood of Bath (Eng-

land) pipes were apparently made in the beginning of the Seventeenth century, and some of the examples bear a shield with a branch of the tobacco plant (Ceramic Art in G. B., I, p. 296, New York 1878, quoted by McGuire, p. 453).

During the seventeenth century the English, Dutch and French made large quantities of clay pipes which the whites used in trade with the Indians, a few of which have been found in Wisconsin. These pipes differ in size and ornamentation. Pipes during the time of James I, were made with a small bowl, probably due to the restrictive laws, and the then popular belief in the great medicinal virtues of tobacco, causing it to command a fabulous price. Styles of trade marks, symbols and ornamentation on trade pipes, are too numerous to mention, and these with small variations, constitute the main differences between the English, French and Dutch makes.

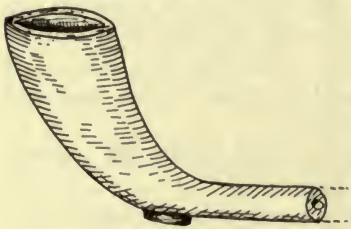


FIG. 29.
English Trade Pipe.
Author's Coll.

Fig. 29, from the Wind Lake village site, Racine county, is a common form of moulded English trade pipe, made of white clay, with small bowl and long stem (now broken). A similar pipe from London, collected by E. Lovett, (Cat. No. 129692; shown by McGuire, p. 453), is in the U. S. Nat. Museum.

Fig. 30, from a mound on the east bank of Rock river, near Hustisford, Wis., is a form of English trade pipe of white clay, with bowl but half an inch in diameter, ornamented on the front by a row of diminutive tobacco leaves, in relief.

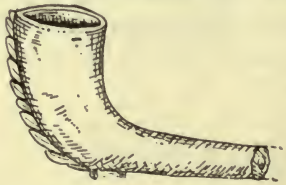


FIG. 30.
English Trade Pipe.
Author's Coll.

FIG. 31.
Clay Trade Pipe.
S. D. Mitchell's Coll.

Fig. 31, from Marquette county, is of pottery, about 4″ long, sections of which are ornamented in red, brown and black fired

in. Scallops around the top of the bowl, make it a most attractive form of trade pipe.

Fig. 32, plowed up in Waukesha county, collected by the late F. S. Perkins, the well-known collector, is of finely glazed brown pottery, 2″ high and 1½″ in diameter. Mr. Perkins contended with the writer that this pipe was of Indian make, but although its shape is not that of any of the well-known trade pipes, its perfect glaze would seem to stamp it as of white man's production.

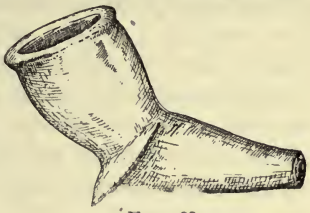


Fig. 32.
Glazed Trade Pipe.
Mil. Pub. Mus. Coll.

Fig. 33 is a trumpet-shaped pottery pipe, about 2″ high, collected by C. Vierter in Southern Wisconsin, which, from the style of ornamentation and quality of material, can probably be classed as of white man's make.

Fig. 33.
Trade Pottery Pipe.
Mil. Pub. Mus. Coll.

Fig. 34 is of fine grained sandstone, has the characteristic heel and appears at a glance to have been copied after the English clay trade pipe. A similar Wisconsin specimen, made of green varigated steatite, having the pointed heel of the Dutch make of the seventeenth century, is shown in Lapham's Antiq. of Wis., p. 83.

Fig. 35, found at Kaukauna, Outagamie county, in 1901, is of Wisconsin catlinite. It is an inch long, bowl half an inch

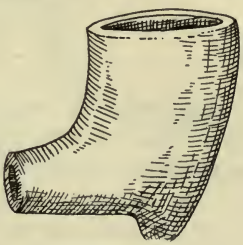


Fig. 34.
Trade Form Stone Pipe.

Fig. 35.
Catlinite Pipe.
Author's Coll.

wide, and was doubtless copied after the earliest English trade pipe form. The work on this specimen is purely Indian, but shows white man's influence.

POTTERY PIPES.

Comparatively few pipes of pottery or clay have been found in Wisconsin, and the ceramic art of its aborigines appears to have reached a higher degree of development in pot-making than in that of pipes. Specimens found in this geographical location are usually either rectangular or trumpet-shaped. The latter form is thought by some to have been adopted after the advent of the whites, as its shape is supposed to indicate European influence, yet this type may be the older of the two, and an

FIG. 36.
Iroquois Pipe.
Author's Coll.

evolution of the tube. The style of decoration is varied, and incised lines, scallops or dots seemed to have satisfied the savage maker's fancies. A few examples contain a slight glaze, but none are of effigy form. The tempering material of crushed shell or sand was usually used to prevent cracking in firing. Pottery vessels and pipes found in certain localities in this state, are tempered exclusively with broken shell, while in other parts not far distant, and where shells are plentiful, the tempering of these artifacts is of crushed quartz or sand. This rule, however,

does not apply to the country bordering the canoe route from Green Bay to the Mississippi river. An examination of most of the pottery pipes known to have been found in Wisconsin, convinces the writer that many of them are exotics, and but few pre-Columbian.

Fig. 36, a fine, trumpet-shaped pottery pipe, from Racine county, is 5″ long, 3″ high, of brown pottery and nicely tempered with sand. This well-known type is common to the Iroquois sites of the state of New York, but rare in Wisconsin, this being the fourth example, so far as the writer can learn, ever found in the state. There is reason to assume that both specimens were lost by the warlike Iroquois of the St. Lawrence valley, when they invaded this country, on one of their forays against the Algonkin tribes. This type of pipe is usually broken when found, as it was a custom of the Iroquois to break the pipe of the deceased before placing it in his grave.

Fig. 37.
Pottery Pipe.
H. P. Hamilton's Coll.

Fig. 37, a very interesting pipe from Winnebago county, is trumpet-shaped, of brown pottery, shell-tempered, 3¼″ high, with scalloped flange around the top of the bowl, and a peculiar handle for a base, formed to fit the finger. No other example of this type of pipe is known to have been found in Wisconsin.

Fig. 38 is a type of Southern mound pipe taken from a mound in Pepin county. It is well tempered with shell, contains eight knobs or coffee-bean protuberances about the bowl, and the stem is ornamented on one side by a zig-zag line, probably intended to represent the emblem of lightning. This pipe is 3¼″ long, and the only one of its kind so far found in this state.

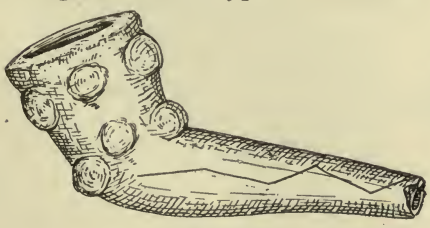


Fig. 38.
Black Pottery Pipe.
Author's Coll.

Fig 39, from Winnebago county, is 2½″ high, of black pottery, tempered with very coarse shell, sections of which show plainly in the cut. This specimen inclines to the trumpet shape, and was moulded into form with the fingers.

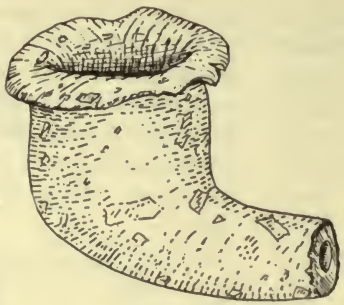


FIG. 39.
Trumpet-shaped Pipe.
H. P. Hamilton's Coll.

FIG. 40.
Trumpet-shaped Pipe.
Author's Coll.

Fig. 40, from Manitowoc county, is of dark pottery, 3″ high, tempered with sand, moulded with the fingers, and is highly ornamented with dots and figures. Its stem, which is broken away, was doubtless much extended.

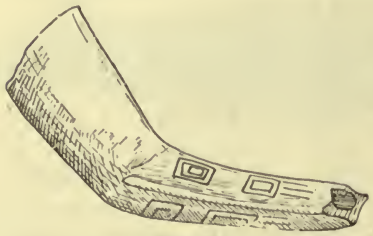


FIG. 41.
Trumpet-shaped Pipe.
Author's Coll.

Fig. 41 was found by Mr. Bezar Reed of Milford, Oswego county, New York, in 1835, in whose family it had been until acquired for the author, by Mr. W. H. Elkey. It is of black pottery, 4″ long, with an alate stem having a pronounced ridge along the edge on each side.

PLATE II.
Pottery Pipes.

DESCRIPTION OF PLATE II.

In author's collection: A. Jefferson county, a trumpet-shaped Iroquois pipe 4″ long, of black pottery, tempered with sand, restored. B. Jefferson county, of red pottery tempered with sand, and bowl ornamented with two encircling zig-zag lines. C. Marquette county, of red pottery, tempered with shell, bowl ornamented with lines representing lightning, and circles for the sun. D. Waupaca county, of red pottery, tempered with sand, very thick-walled bowl with ornamented edge and encircling zig-zag lines. E. Marquette county, of brown pottery tempered with broken quartz, thick-walled bowl ornamented with figures representing the sun and moon. F. Marquette county, of brown glazed pottery, sand-tempered, bowl ornamented around the top with a line of dots and three double perpendicular lines of dots on its sides. G. Dane county, mound find, dark pottery, tempered with quartz, ornamented with scolloped rim and incised figures. H. Jefferson county, yellow pottery, shell-tempered. I. Calumet county, of black pottery, shell tempered and rudely moulded. J. Dane county, mound find, black pottery, and probably no tempering material used. K. Marquette county, mound find, of black pottery, shell-tempered, bowl ornamented to represent a section of an ear of corn, each kernel being well defined. L. Marquette county, of black, glazed pottery with square stem, intended for the addition of a mouthpiece, and decidedly showing white man's influence. M. Ozaukee county, of red pottery, unornamented, tempered with shell, contains a large quantity of pyrites of iron and is peculiar in having a basal projection in front of the bowl. N. Crawford county, mound find, is of brown pottery, 4″ long, and sand tempered. O. Marquette county, brown pottery, sand-tempered, ordinary type. P. Marquette county, red pottery, shell-tempered, very short stem. Q. Marquette county, brown pottery, sand-tempered, ornamented with dots around top of bowl.

Mr. C. T. Olen's collection: R. Pottery from Winnebago county, peculiar in having a keel. S. Kewaunee county, gravel-pit find, dark pottery, ornamented bowl, much like the Iroquois

pattern. A similar pottery pipe found in the same gravel-pit, with Mexican opals, is in the same collection.

Milwaukee Museum collection: T. From Marquette county, is a fragment showing a peculiar style of ornamentation.

Mr. S. D. Mitchell's collection: U. Marquette county, double conodial, red pottery, stem and bowl each 2" long. Stem and bowl cavities each the same size.

Mr. Chas. Wheffen's collection: V. Calumet county, red pottery, ornamented with incised curved lines crossing each other.

Mr. F. M. Caldwell's collection: W. Marquette county, yellow pottery, with scalloped flange around the top of bowl, base ornamented with the emblem of lightning.

Mr. F. H. Lyman's collection: X. Kenosha county, trumpet-shaped 3" long (now in author's collection). An example of the same type from Sheboygan county, but poorly fired, is in the A. and J. Gerend collection.

STONE PIPES.

Early explorers reported the general use of stone pipes in America, by all Indians, both savage and semi-civilized. As to variety, Dodge states: "For different occasions they have different pipes; thus they have a Peace-pipe, a Council-pipe, a Medicine-pipe, and a pipe for common use. Each is sacred to its own purpose" (Indians, 130).

While Wisconsin is not as rich in tube pipes as is the southwestern portion of America, or in fine effigy pipes as is Tennessee and its neighboring states, yet interesting examples of nearly all of the aboriginal forms in stone are found here in sufficient numbers to indicate that the pre-historic inhabitants were inveterate smokers.

The tube pipe, believed to be the oldest type, is often found here under similar conditions and in the same mound with the effigy, micmac, disk, urn-shaped and other types; the first named, as a rule, showing no greater evidence of age than the others.

Many of the tube pipes of this State are doubtless old, while a number of them seem to be of quite recent make. All considered, it would seem that while there are indications of the evolution of the tube form in this locality, at no time was an exclusive type

used; and that the manufacture and use of the older types as they come in one after the other, was continued for ages. There seems to have been a period of decadence in stone pipe making in Wisconsin, before the Discovery,—clay, bone and horn taking the place of stone to a great extent. The revival of stone pipe-making came through the whites, steel tools making the shaping and drilling an easy matter, as compared with their tedious production with stone implements.

SIOUAN PIPES.

CALUMETS.

No pipe was ever regarded by the American aborigine with greater reverence and respect than the calumet. It was used in the ratification of treaties and alliances; in the friendly reception of strangers; as a symbol in declaring war or peace, and afforded its bearer safe transport among savage tribes. Its acceptance sacredly sealed the terms of peace, and its refusal was regarded as a rejection of them.

Calumets made of steatite, limestone, sandstone, and granite, are often found, but a large majority of them are made of catlinite, a compact clay slate, named after Mr. Geo. Catlin, who lived for many years among the Indians, and to whom great credit is due for his many portraits and other paintings true to aboriginal life. The color of catlinite is usually cherry red, often mottled and shading into ash, grey or black. This material was quarried by the Indians in several places in Minnesota, Iowa, South Dakota, Missouri and in Barron county, Wisconsin. Specimens of "pipe stone" are sometimes secured from the glacial drift. Pipes of catlinite are not necessarily of modern make. Examples have been found, over a wide area, in Indian mounds and graves. In 1880 a broken pipe of this material was found by Ole Rasmussen, in the town of Farmington, Waupaca county, while digging a well, 18 or 20 feet below the surface. The material has been known, under different names, ever since the Discovery.

Catlin, who in 1835 visited the pipe-stone quarries of Minnesota, had previously found catlinite "in the hands of the savages

of every tribe, and nearly every individual in the tribe has his pipe made of it" (North American Indians, p. 36). After a visit to the famous quarries, Catlin concludes as follows: "From the very numerous marks of ancient and modern diggings or excavations, it would appear that this place has been for many centuries resorted to for the red stone; and from the great number of graves and remains of ancient fortifications in its vicinity, it would seem, as well as from their actual traditions, that the Indians have long held this place in high superstitious estimation; also it has been the resort of different tribes who have made their regular pilgrimages here to renew their pipes" (North American Indians, p. 229).

The highest attainment of the aboriginal carver's art found expression on the bowls of the calumet pipes made in the valley of the Ohio and St. Lawrence rivers. Throughout Wisconsin and the Mississippi valley the stem only appears to have been regarded with veneration, whilst the bowl, as a rule, was a matter of indifference, which seems remarkable, as most ancient American pipes had no detachable mouth piece.

At the advent of the whites the stems of the calumets were often found to be a yard long, two or three inches wide, worked down to a quarter of an inch in thickness, and profusely ornamented with bands of finely braided colored grasses, porcupine quills and dyed hair. To them were tied feathers and even the heads of ducks and other birds. These materials for decoration were gradually supplanted by glass beads and brass headed tacks.

Doubtless the calumet, rectangular in form, was in use by the Indians at the time of the Discovery. As to the use of this type of pipe within historic times, Roger Williams, in his description of the Indians of New England in 1643, reported their making "great pipes of stone and wood." The Jesuit Relations, in an account of a conference between the New England Nations and the French, refers to two pipes "made of green stone, beautiful and highly polished, a cubit long." La Thoutan, in his account of a conference between De La Bavre and the Onandagas, 1684, mentions a "pipe of peace." Father Hennepin said: "I had certainly perished in my voyage, had it not been for the Calumet or pipe" (A New Discovery, etc., chap. XXIV, p. 93, London, 1698). Capt. John Smith mentioned a

stone pipe of heavy effigy form, three-quarters of a yard long. In 1756 Sir William Johnson presented a calumet to the Six Nations. In early French records there is an abundance of evidence that the calumet was of great service to the early missionaries, and offered protection under all circumstances. Later the pipe and wampum belt were conferred together, especially by the English, who, to gain additional favors, also presented large silver medals. In describing pipes used by the Omahas in the calumet dance, Mr. J. Owen Dorsey says that they have elaborately decorated stems, with a duck's head substituted for a bowl (3 Eth. Rpt., p. 277).

In describing the pipe of Mah-to-toh-pa, second chief of the Mandans, Catlin says: "His pipe which was ingeniously carved out of red steatite (pipe stone) the stem of which was three feet long and two inches wide, from the stalk of the young ash; about half its length was wound with delicate braids of porcupine quills, so ingeniously wrought as to represent figures of men and animals upon it. It was also ornamented with the skins and beaks of woodpeckers' heads, and the hair of the white buffalo's tail. The lower half of the stem was painted red and on its edge it bore the notches he had recorded for the snows (or years) of his life" (North Amer. Indians, p. 165).

The Indian did not use his calumet as an ordinary pipe. The report of the capture of the warlike Winnebago Chief Red Bird states: "Across the breast, in a diagonal position, and bound tight to it, was his war pipe, at least three feet long, brightly ornamented with dyed horse-hair and the feathers and bills of birds. In one of his hands he held the white flag, and in the other the Calumet Pipe of Peace" (Wis. Hist. Coll. 8, p. 263).

The few calumets, in effigy form, found in Wisconsin, contrary to the style of those found in the East, do not have the carving confined to the bowl, the whole top of the base being often utilized for ornamentation. Most of our Northwestern calumets have tall bowls at right angles to the stem. The pipe usually has on the top of its stem and extending along it, an alate projection ornamented with perforations, dots or tally marks. The manner in which the tally marks are sometimes crowded in would indicate that they were added to from time to time, doubtless as a record of events in which the pipe played an important part.

FIG. 42.
Great Calumet Pipe, Logan Coll., Beloit College.

As to the manner of passing the Calumet by the Sioux: "You never see a Sioux Indian, if he is in company, smoke alone. The pipe is lighted and he takes a whiff or two himself, and passes it to his neighbor, always passing it around with the sun. When several are assembled together, you will see a number of pipes going the rounds in the same manner" (Wis. Hist. Coll., Vol. 2, p. 88).

Fig. 42 was found on the farm of Mr. R. Reynolds, Sect. 4, Mt. Pleasant, Racine county, in 1849, and was in the collection of the late Dr. P. R. Hoy until his death. This fine specimen is 7" long, made of drab sandstone, and with an alate projection containing several tally marks, on the top of its base. Its base was at one time broken and later repaired by cutting deep retaining grooves, filling them with melted lead, and smoothing it down even with the surface of the stone. This specimen is of special interest because of its unusual size, and particularly for the reason that it was found in the vicinity of the first trading post in Racine county, established about the year 1832, by Jaques Jambeau.

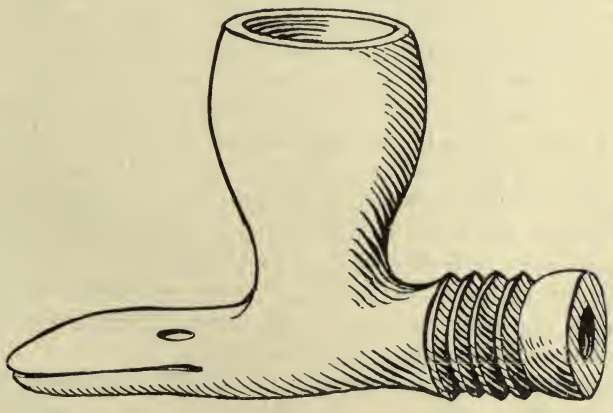


FIG. 43.
Calumet Pipe, Logan Coll., Beloit College.

Fig. 43, from Racine county, is of dark steatite, and was also collected by Dr. Hoy. The fore end of this pipe is carved to represent the head of a duck or snake. It was doubtless used as a ceremonial calumet.

DESCRIPTION OF PLATE III.

In author's collection: A. From Waushara county, of blue limestone, 3½" long, bowl broken away, has the appearance of great age, its wing projection extends the whole length of the stem, and is ornamented with 30 tally marks on one side and 27 on the other. B. From Chippewa county, of drab steatite, 4" long and 2¾" high, unpolished, with unornamented wing, stem octagonal in shape, with projection in front of bowl. C. From Door county, of catlinite, 4" long by 1¾", octagonal bowl, rounded stem, with flattened base, and projection in front of bowl. The alate projection has 7 perforations. The stem and bowl holes are each half-an-inch in diameter. This pipe was found in a mound at Red Banks in 1875, was traced by the author to Quebec, Canada, and purchased of Dr. W. H. McGowan. D. From Winnebago county, of catlinite, 6" by 2¾," beautifully polished. Top and bottom of stem are flattened sides rounded, bowl round, end of stem and top of bowl ornamented with several rings in relief. E. From Adams county, of catlinite, 5" by 2¾," bowl and stem round with flattened base, top of bowl and end of stem ornamented with several rings in relief, and line of dots around bowl. F. From Adams county, of catlinite, 4½" by 2¾," bowl carved to represent the head of some animal. A comb-shaped projection extends from the outside of the bowl beneath the stem for the greater part of its length. What is almost a duplicate of this specimen is in the collection of Mr. S. D. Mitchell, Ripon, Wis.; and a similar one is in the Logan collection at Beloit College. G. From Crawford county, of catlinite, 6" by 2½," being an interesting modification of the characteristic Siouan type. This specimen shows no indications of modern manufacture.

Milwaukee Museum collection: H. Of catlinite, 4½" by 3½," marked "Wisconsin." This pipe has a scalloped keel reaching from the top of the bowl to within half an inch of the end of the stem. Each scallop is perforated.

Many fine examples of the calumet, some of which were obtained by early settlers from noted chiefs, are in the cabinets of Wisconsin collectors. Each of these belong to some one of the types shown in Plate III.

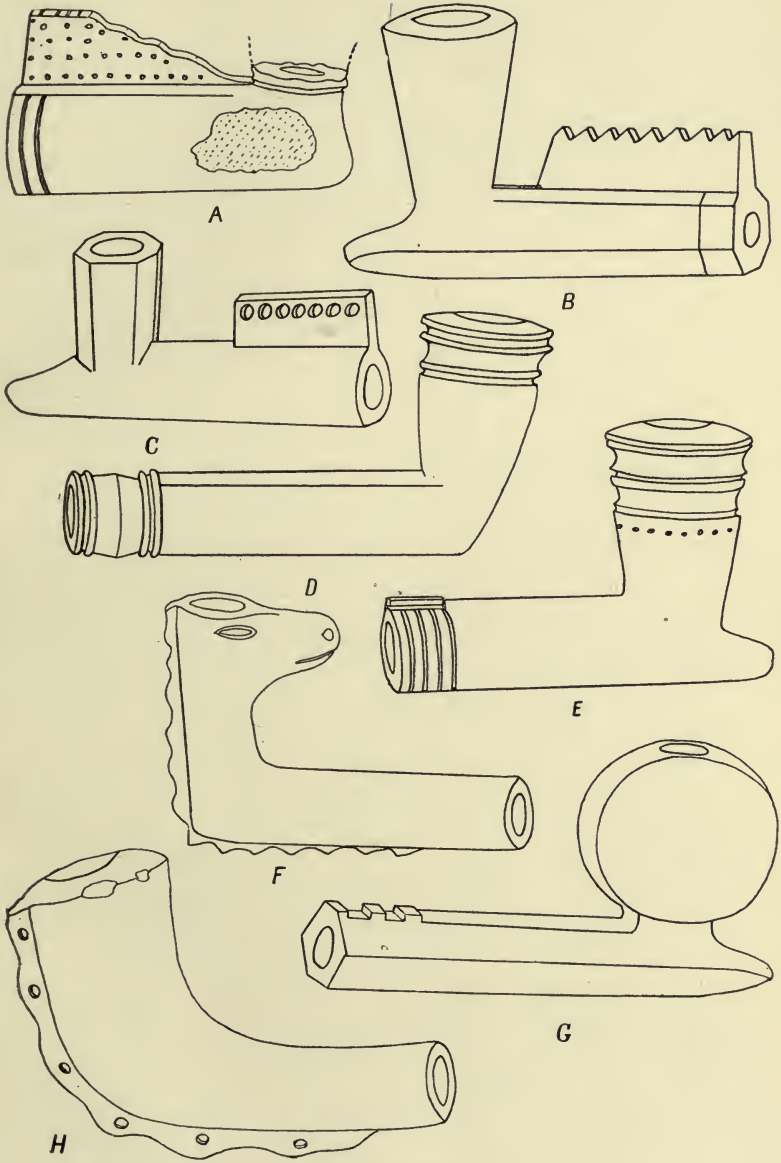


PLATE III.
Siouan Calumet Pipes.

LEADED SIOUAN PIPES.

Lead was frequently ingeniously used by the Sioux as well as other Wisconsin Indians, in mending broken calumets, ornamenting new pipes, and in binding together two sections of a pipe made from several pieces of stone.

Fig. 44 is 5½″ long, of jet black chlorite, showing much use, and is interesting as illustrating the artistic manner in which its broken stem was repaired. This pipe was purchased by Mr. J. C. Barton, Chief Engineer of the Midland Pacific Railway, from Chief Talking-Crow, who carried it through the Minnesota Massacre, and whose band robbed the first printing office in South Dakota, at Sioux Falls, using some of the stolen type to repair this specimen.

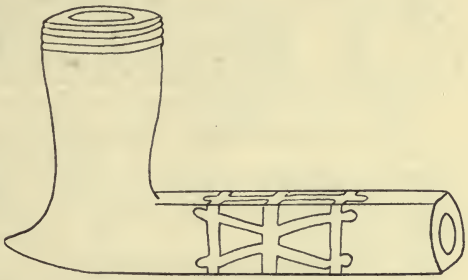


FIG. 44.
Mended Calumet, Author's Coll.

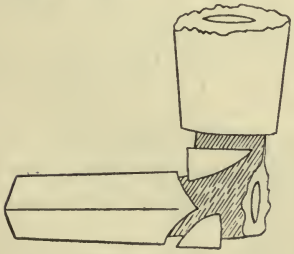


FIG. 45.
Author's Coll.

Fig. 45, found by Mr. T. W. Hamilton, near Berlin, Green Lake county, is of catlinite, and shows a section of a broken calumet, ready to receive the molten lead, in process of its repairing. After cooling, it was a simple matter to smooth off the lead flush with the surface of the pipe, and the splice would be complete.

Fig. 46, from Sheboygan county, found by Joseph Kraemer, on his farm near Elkhart Lake, is of catlinite, and shows a section of a pipe with a joint ground perfectly smooth, and evidently intended to be joined to a bowl, made of a separate piece of stone.

FIG. 46.
Author's Coll.

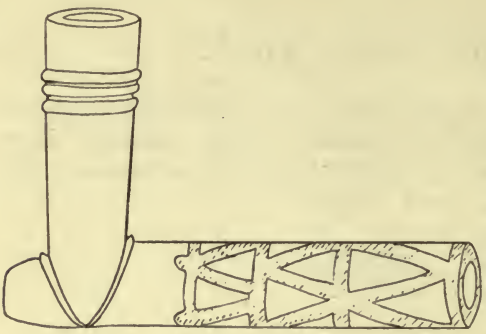


FIG. 47.
Lead & Stone Calumet, Author's Coll.

Fig. 47, a fine piece of Siouan work in lead and stone, is of dark red catlinite, 6" long, with round bowl and stem. Near the top of the bowl are three rings, in relief. The stem is highly ornamented with inlaid lead, neatly smoothed down and filling the grooves so completely that the joints are absolutely tight. The lead was used purely for ornamentation, there being no crack or break in the stone requiring repair.

Fig. 48, collected by the late F. S. Perkins, is of steatite, the top of the bowl has been cut away and lead supplied. This is a common manner of ornamenting stone pipes with lead. It is not unusual to find Siouan pipes inlaid with the figures of animals or birds in lead, the variety of ornamentation being very great. When shallow drill holes were filled with lead it was sometimes done by the pounding process, but as a rule the metal was melted and poured into the prepared grooves. Lead was either obtained from the mines in South-western Wisconsin, or in bars from the whites.

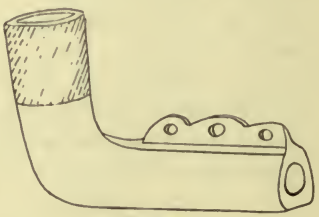


FIG. 48.
Lead & Stone Pipe.
Mil. Pub. Mus. Coll.

Orders for goods for the early-day Indian trade usually contained a request for bars of lead.

DIMINUTIVE SIOUAN PIPES.

Pipes of this type are smaller in size, but resemble the Siouan calumet in shape, ornamentation, and in being made for the reception of a stem. Regardless of their size, a large number of these pipes may have been used as calumets.

PLATE IV.
Diminutive Siouan Pipes.

The Siouan form of pipe may well be regarded as an old type. A large number of Wisconsin finds are plain, unornamented, and show no evidence of the use of modern tools in their manufacture. More recent examples are often most elaborately carved, or have their surfaces inlaid with neat figures cut into the stone and filled with lead.

DESCRIPTION OF PLATE IV.

In the author's collection: A. From Jefferson county, of catlinite, 3½″ long, highly ornamented with emblems of the moon, and lightning deeply etched into the surface, and nearly obliterated by use. B. From Portage county, of catlinite, surface find, 1½″ long by 2″ high. C. From Marquette county, from a grave, of catlinite 2½″ long ornamented by comb on top of stem. D. From Green Lake county, of catlinite, and interesting in having a perpendicular slot at outside of end of base, for the reception of an ornament of bone or other material. E. From Grant county, from a mound, of catlinite, 2″ long. F. From Marquette county, of catlinite, surface find. The front of the bowl is peculiar in being sharp, almost a cutting edge. H. From Iowa county, of catlinite, surface find, 2″ long and equally as high. I. From Iowa county, of catlinite 2½″ long, ornamented with a number of rings; surface find. J. From Crawford county, of catlinite, 2½″ long, surface find, ornamented with perforated comb on the top of the stem. K. From Marquette county, of catlinite, 2½″ long, surface find, ornamented with perforated wing on the top of stem. L. From Marquette county, from a mound, of catlinite, 1½″ high. This pipe is simply roughed out by chipping and scraping, the drilling being but partly finished. It exhibits no marks of metal tools. O. From Washington county, from a mound, of steatite, 2¾″ long, probably of great antiquity. The wall of its bowl is worn down to about 1/16 of an inch in thickness. P. From Waukesha county, from a mound, of catlinite. It is an unfinished specimen, simply roughed out, partly drilled and interesting in showing the process of its manufacture. Q. From Green Lake county, of steatite, 3½″ long, rounded base, monitor type, very old in appearance and showing much use.

Mr. C. T. Olen's collection: G. From Winnebago county, of steatite, 4½″ long and ornamented with perforated comb on

the top of the stem. Figured in Lapham's Antiquities of Wisconsin, p. 83: M. Marked "Wisconsin," is of fine grained sandstone.

Mr. E. E. Bailey's collection: N. Of catlinite, from Brown county, surface find, and finely ornamented.

Mr. August Bartle's collection (now in the author's cabinet): R. From Sheboygan county, of steatite, surface find.

Mr. F. J. B. Duchateau's collection: Unlettered specimen, from Brown county, is of drab steatite, surface find.

FIG. 49.
Square-bowled Pipe.
A. J. Holmes Coll.

Fig. 49, found near Beaver Dam, Dodge county, of drab steatite, is 2½" long, and finely polished. The striations, quite prominent in the bowl cavity, indicate the use of stone drills in its excavation. The stem hole is less than an eighth of an inch in diameter.

A duplicate of Fig. 49, from Jefferson county, is in the cabinet of Mr. Louis Tester, and a third example from Marquette county, of light grey chlorite, is in the authors's collection. The last described shows no evidence of the use of metal tools in its manufacture, yet its shape and finish suggest European influence.

MICMAC PIPES.

This type of pipe usually has an inverted acorn-shaped bowl attached to a base by a narrow neck or separated from it by a deep encircling groove. The base is either cylindrical, round, square or keel-shaped in form, often terraced and subject to many modifications. It frequently contains one or more perforations to which were probably attached ornaments, or strings to prevent its loss in the snow, leaves or grass. In some specimens there is no suggestion of a stem while in others one end of the base is extended to a considerable length, allowing for the firm attachment of a mouthpiece.

Authorities seem to agree that the micmac type of pipe is of no great age, but several specimens found in Wisconsin, especialiy

those with the unperforated base, have the appearance of being very old, and certainly exhibit no evidence of metal tools having been used in their manufacture. There is little doubt but that this type was in use for some time previous to the Discovery and until a recent date. The variety with the perforated keel is still smoked in Labrador and the Hudson Bay country. Specimens of the micmac type of pipe are found as far south as Georgia and from the Atlantic Ocean to the Rocky Mountains.

The Micmac tribe of Indians, during historic times at least, have occupied Nova Scotia, Cape Breton, Prince Edward Island, the north of New Brunswick and adjacent parts of Quebec, also ranging over Newfoundland. This interesting type of pipe is said to have been named after these Indians, with whom it was in general use at the time of the advent of the whites. Sixty-six micmac pipes, known to have been found in Wisconsin, have been sketched by the author. The Micmacs are not known to have occupied any Wisconsin territory but they belonged to the great Algonkin family, many tribes of which made their home here. The general distribution of the micmac pipe can be accounted for by barter and trade and from the fact that any convenient pipe form, when once seen, would be copied after.

The oldest form of micmac pipe has an unperforated rounded base, narrowest at the bottom and extending but a short distance on each side of the bowl. The encircling groove at the lower part of the bowl was probably used for the attachment of a cord leading to a detachable stem, thus holding it in place and preventing the loss of the bowl.

Fig. 50, from Brown county, is of compact blue limestone, 2½" high, with a rounded, unperforated base, cone-shaped bowl and stem-hole, and, as is the case in most of the older types, the point of contact of the holes is exactly at the apex of the cone or conical hollow of each opening. This pipe is much weathered, shows no metal tool marks, and has every indication of great age. An exact duplicate of this specimen (A) in the author's cabinet, is from Columbia county. Two examples of this form in the same collection, (B and C)

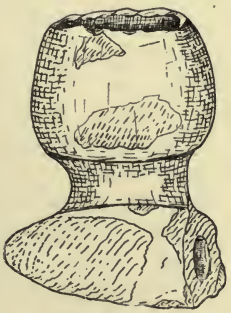


FIG. 50.
Unperforated Micmac Pipe.
Author's Coll.

with cylindrical bases, are from Sheboygan and Green Lake counties, respectively. A pipe of the same variety in the Wis. Historical Society's collection (D) and a duplicate of B, in Mr. J. P. Slight's cabinet, from Dodge county. have cylindrical bases.

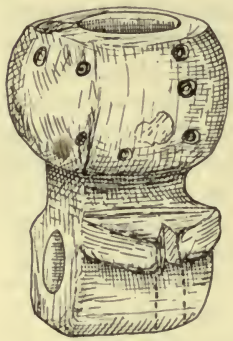


FIG. 51. Unperforated Micmac Pipe.

Fig. 51 was taken from a mound on an island in Rest Lake, Vilas county, by Mr. J. G. Albright, Mr. H. F. Jahn and Dr. H. E. Fox, in 1902. This specimen, which is on deposit with the author, is of limestone, 2½" high, badly weathered, and stained with iron rust; its bowl is ornamented with six perpendicular rows of deep depressions and is remarkable in having a perpendicular hole extending from the bottom of its base to the stem-hole, and probably intended to receive a plug or handle. This theory is substantiated by the fact that this hole was drilled from the outside, and that on the sides of the base are notches to allow the passing of a cord from the neck of the bowl around the wedge-shaped base, for the purpose of holding the plug or handle in place.

An example (E) in Mr. F. M. B. Coll's collection, from Waupaca county, is similar in shape to the one shown at Fig. 51, but with a more pronounced wedge-shaped base, ornamented by a number of depressions made with a stone drill. A specimen (F) in Mr. H. G. Schuette's collection, from Manitowoc county; one (G) in author's cabinet, from same county, and a third (H) in the same collection from Waupaca county, have wedge-shaped bases.

Fig. 52, from Jefferson county, is of yellow limestone, 3" high, having a terraced base ornamented by incised lines and scalloped keel. This specimen is probably of no great age, but illustrates a stage of development in the unperforated base type.

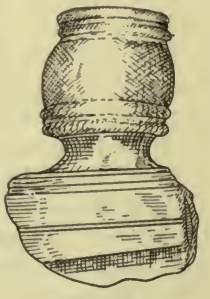


FIG. 52. Terraced Base Micmac Pipe. Author's Coll.

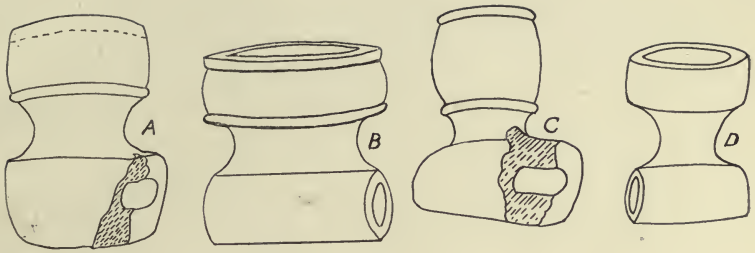


PLATE V.
Unperforated Micmac Pipes, Rounded Base.

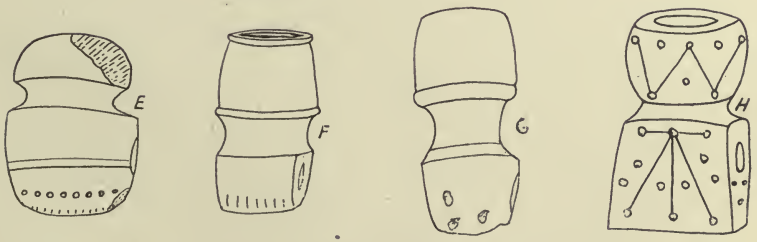


PLATE VI.
Unperforated Micmac Pipes, Wedge-Shaped Base.

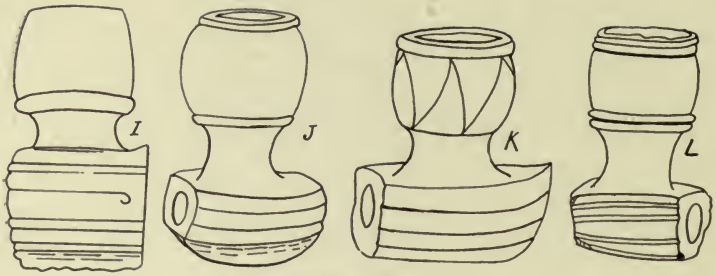


PLATE VII.
Terraced-base Micmac Pipes.

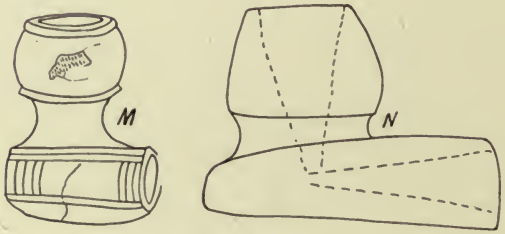


PLATE VIII.
Stemmed Micmac Pipes.

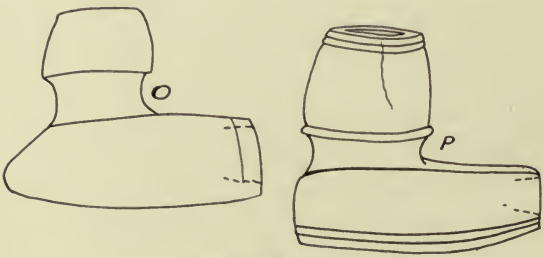


PLATE IX.
Stemmed Micmac Pipes.

In Mr. H. P. Hamilton's collection: (I) from Marquette county, is of black chlorite, otherwise almost a duplicate of the last described. A very similar specimen (J) in the Wis. Historical Society's collection labeled "Wisconsin," is of drab limestone. In the same collection is a fine specimen (K) of pink sandstone. One in the author's cabinet (L) of red catlinite, from Iowa county, has a similar form of terraced base.

Fig. 53, from Dodge county, is of compact limestone, 2¾" high, with plain base extended about an inch on one side, forming a stem to be used with the addition of a mouthpiece. This appears to be a modification of the unperforated base form, and an example of what might properly be called the stemmed micmac pipe.

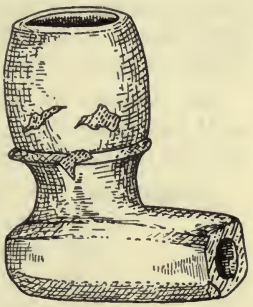


Fig. 53.
Stemmed Micmac Pipe.
Author's Coll.

A similar specimen (M) in the author's collection, from Outagamie county, is of limestone with the base ornamented with incised lines. A much weathered and interesting pipe of this type (N) in Mr. H. P. Hamilton's cabinet, from the same county as Figure M., has a stem 3½" long. This specimen shows considerable age.

A fine example (O), a trifle smaller, in the same collection, from Brown county, is of Wisconsin catlinite. One of these pipes (P) from Jefferson county, of sandstone, is illustrated in Lapham's "Antiquities of Wisconsin" (Fig. 83). All of the stemmed micmac pipes above described, have bases that are square in section, but narrowest at the bottom. Each of the two examples in the author's cabinet have cylindrical bases.

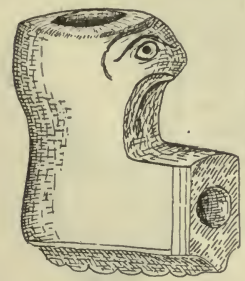


Fig. 54.
Stemmed Micmac Pipe.
Author's Coll.

Fig. 54, from Brown county, is of black chlorite, 2½" high, and illustrates the development of the stemmed micmac pipe. It is carved to represent the head of a raven or crow, facing the smoker. The keel is unperforated, and close examination reveals marks possibly made by metal tools. This

rare pipe was owned for many years by Mr. Augustin Grignon an early settler of Green Bay, and prominent in early Wisconsin history, was later in the cabinet of Dr. H. B. Tanner of Kaukauna for 20 years or more, and was finally secured for the author by the well-known collector, Mr. W. H. Elkey of Milwaukee.

The micmac pipe in its highest development is frequently embellished by finely carved figures representing bird or beast, its distinguishing characteristic being the perforated base or keel. Metal tool marks are usually in evidence, which tend to substantiate the theory that it is, as a class, of no great age.

Mr. Lucian M. Turner states that the Hudson Bay Esquimo still use these pipes (11th. Eth. Rept., p. 330). As to the object of the keel perforation: "A hole is drilled through its base or keel that a cord may be inserted and tied to the stem that the pipe may not be lost in the snow."

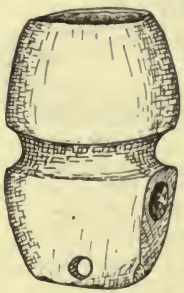


FIG. 55. Perforated Base Micmac Pipe. Author's Coll.

Fig. 55, taken from a mound in Buffalo county, is of dark compact sandstone, 2½" high, with a cone-shaped bowl and stem-holes; the former having been enlarged by the use of a gouge. The surface of this pipe shows it to have been pecked or hammered into shape.

In the same collection as the last described, is one from Jefferson county, (Q) of limestone, of the same height but more graceful in shape. This form is quite common in Wisconsin. One in the same cabinet (R) also from Jefferson county, is of sandstone, with cylindrical base and perforated keel. A similar pipe (S) with a square base and perforated keel is in the Milwaukee Museum. A beautiful specimen in the author's collection (T) of black chlorite, from Minnesota, is 5" high with 4 perforations in its base.

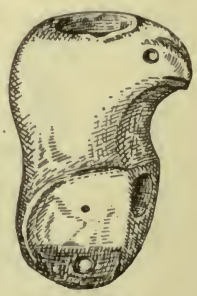


FIG. 56. Perforated Micmac Pipe. Author's Coll.

Fig. 56, from Door county, is of limestone, 2" high, carved to represent the head of a bird, and is a fine example of the developed perforated keel micmac pipe.

Fig. 57, found by Mr. Frank Lee at Lee's Point, on bank of Lake Koshkonong, Jefferson

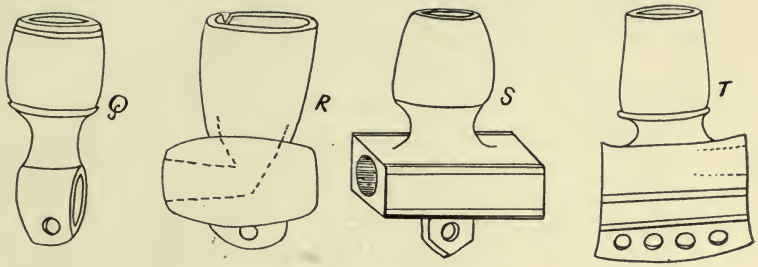


PLATE X.
Perforated-base Micmac Pipes.

PLATE XI.
Interesting Forms of Micmac Pipes.

county, is 1½″ high, of green steatite finely polished. A deep groove encircles the bowl just above its stem-hole. The ornamentation consists of lines and dots. The base is carved to represent the head of some animal, probably that of a turtle.

FIG. 57. Micmac Bird Pipe. Author's Coll.

The following are a few interesting Wisconsin specimens:

(1) In author's collection, from Milwaukee county, is of limestone, 2″ high, finely polished. (2) In same cabinet, from Door county, is of compact limestone and interesting because of its having been made from the base of a broken micmac pipe. It plainly shows evidences of having been sawed from the original bowl, thus illustrating Indian economy. (3) In Mr. H. G. Schuette's collection, from Manitowoc county, ornamented with lead inlaid about the stem-hole. Several depressions in the base are filled with this metal. (4) In Mr. Horace McElroy's cabinet, from Monroe county. (5) In the Wis. Historical Society's collection, marked "Wisconsin," made of black slaty rock, inlaid with lead, very modern. (6) In Mr. H. P. Hamilton's cabinet, from Manitowoc county, of brownish diabase. (7) In the author's cabinet, from Green Lake county, of grey sandstone, 2½″ high. (8) In the same collection, from Racine county, is of catlinite, and shows much use. This pipe can hardly be classed as a micmac. It is peculiar in having a deep groove encircling the stem instead of the bowl, and by means of which a detachable mouthpiece could be made fast to the bowl, by the use of a cord of sinew, rawhide or other suitable material.

PORTRAIT PIPES.

The mounds, graves, and village sites of Wisconsin have yielded more examples of stone pipes with carved human heads than of any other form of effigy pipe. Some writers brand all portrait pipes as modern, which is doubtless true of a large number, but several Wisconsin finds have all the characteristics of the old forms, and were apparently made with primitive tools.

Fig. 58 was dug from a grave at East Jacksonport, Door county, over which was an old pine stump 30″ in diameter, by Mr. L. K. Erskine, from whom it was secured by Mr. W. H. Elkey, for the author. This pipe is of compact flinty limestone,

FIG. 58.
Portrait Pipe, Author's Coll.

and most skillfully carved into a resemblance of the head and face of a frowning Indian. Both bowl and stem excavations are conical in shape, and were evidently made with stone drills.

Fig. 59 is of dark sandstone, 10″ long, with a portion of its bowl broken away. This remarkable pipe was found many years ago near Fort Atkinson, Jefferson county, and is now in a private collection in the State of New Hampshire. It is a calumet but not of the Siouan type. The writer is informed that this specimen is unpolished, has the appearance of great age, contains no metal tool marks, and shows much use.

FIG. 59.
Portrait Pipe.

FIG. 60.
Portrait Pipe.
Author's Coll.

Fig. 60, found by Mr. John Davis, on an old Chippewa Indian village site, sect. 25, bank of Tank lake, Iron county, is 2″ long, equally as high, and shows the marks of metal tools used in its manufacture.

Fig. 61, from Juneau county was found on section 1, by Mr. A. G. Goffko, and is of compact sandstone, roughly made, 2″ long by 1¾″ high, with irregularly shaped bowl and stem-holes showing evidence of having been enlarged by the gouging process. This specimen is of extremely rude workmanship, but of no great age.

FIG. 61.
Portrait Pipe.
Author's Coll.

Fig. 62, from Kenosha county, was found by Mr. A. B. Jackson, 5 feet below the surface, while digging a cellar in 1853, on section 12, town of Salem. It is a fine specimen of aboriginal art, and is of steatite, 2½″ long, by 2″ high.

Fig. 63, from Sheboygan county, is of flinty, limestone, 2¾″ high, with face rudely carved, facing the smoker. The writer has had no opportunity of examining this specimen.

FIG. 62.
Portrait Pipe.
Mil. Pub. Mus. Coll.
Coll. by F. S. Perkins.

Fig. 64, from the south shore of Lake Superior, is of black slate 2½″ long, with a rude face carved on the end facing away from the smoker. The sketch of this pipe is after one furnished by Chas. E. Brown, Secretary and Curator of the Wisconsin Archeological Society.

FIG. 63.
Portrait Pipe.
John Gerend's
Coll.

Fig. 65, from Winnebago county, is of compact grey limestone, bowl 2½″ high, fitted with an old bone stem 3½″ long, and so made that a half turn is necessary before it can be withdrawn from the

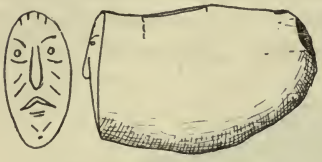


Fig. 64.
Portrait Pipe.
W. W. Radley's Coll.

stem-hole. This specimen was found with a gravel-pit burial, together with 25 Mexican opals; and several other artifacts.

Fig. 65.
Portrait Pipe.
C. T. Olen's Coll.

Fig. 66 is of catlinite, 4″ long, 2½″ high, was obtained from an Ojibwa Indian, in Chippewa county, in the year 1872, by a French trapper, who presented it to Mr. T. D. Brown. It has been in the Brown family ever since. It is a characteristic Chippewa pipe, and was doubtless carved with pieces of hoop iron or other metal tools. The noted collector, the late F. S. Perkins, pronounced this specimen the best example of historic Indian carving he had ever seen.

Fig. 66.
Effigy Pipe, Author's Coll.

EFFIGY AND EMBLEMATIC PIPES.

Comparatively few effigy pipes have been found within the geographical limits of Wisconsin, and none of the great heavy examples so frequently collected in the Ohio Valley and further south, have been discovered here. It is very doubtful whether future researches will reveal them.

Fig. 67 is of greyish, brown steatite, 3¼″ long, 2¼″ in its greatest width, and with a finely carved upper surface representing a turtle. The bowl is in the center of the turtle's back, the stem-hole is small and was doubtless used without the addition of a detachable mouth-piece. The lower part of the body is flat with no attempt to form either legs or tail. This speci-

men was discovered within the southern limits of the city of Milwaukee, and is believed to be the only ceremonial pipe of turtle form, so far found in Wisconsin. The turtle was an

FIG. 67.
Turtle Pipe, Mil. Museum Coll.

emblem of the Sioux, and from the frequent occurrence of its shell in graves, must have been held in high esteem by the Indians, yet representations of it in stone are exceedingly rare.

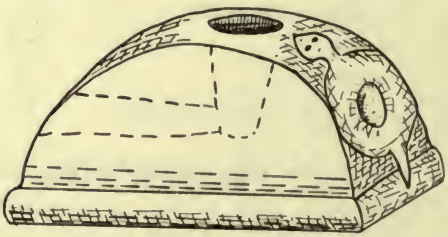


FIG. 68.
Turtle Pipe, Author's Coll.

Fig. 68, from Allegan county, Michigan, is of granite, 2¾″ long, 2″ high, with flat base, straight sides, with a turtle carved on the end opposite the stem-hole. This pipe has all the indications of having been made with primitive tools.

Fig. 69, taken from a stone grave in Hancock county, Tennessee, in 1899, is of fine grained dark slate, 4″ long, and carved to represent a rattle-snake coiled about the bowl and stem of the pipe, which rest upon a turtle, its head showing from beneath the bowl.

A fine turtle pipe, 2″ long, of granite, in the author's collection, was found in Onondaga county, New York. The head

is well executed, the bowl-hole in the center of the back, and the base curved. It has the appearance of great age. One belonging to Mr. E. C. Mitchell, of St. Paul, Minnesota, found by Mr. George W. Hicks near Stockbridge, Calumet county, Wis., is of catlinite and in the shape of a tube, about 3″ long, with the bowl-cavity in the center of the turtle's back. A top view suggests the body of an owl.

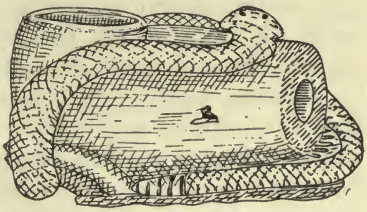


Fig. 69.
Turtle and Snake Pipe.
Author's Coll.

An example of a turtle pipe is in the New York State Museum. Dr. David Boyle reports three in the collection of the Provincial Museum of Toronto (Rept. 1896–97, p. 51).

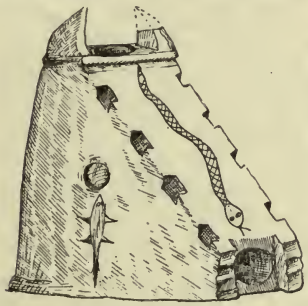


Fig. 70.
Buffalo Pipe, Author's Coll.

Fig. 70, found by Peter Wilkinson in the township of Granville, Sauk county, in the year 1886, is of red catlinite, 3″ high, nearly as long, and about half as thick. It has horns curved like those of the buffalo, inlaid eyes of lead, a lizard on its either side and a serpent down its front. It was doubtless a ceremonial pipe and the only one of its form known to the writer. It is regarded as hardly pre-Columbian.

Fig. 71, a frog-pipe, found by Mr. John Tanner in 1871, in Marquette county, is made of compact brown limestone, is 3½″ high, and 4½″ long. The stem and bowl-cavities are conical in shape, both pecked out, and each 1¼″ in diameter at the surface, the stem-

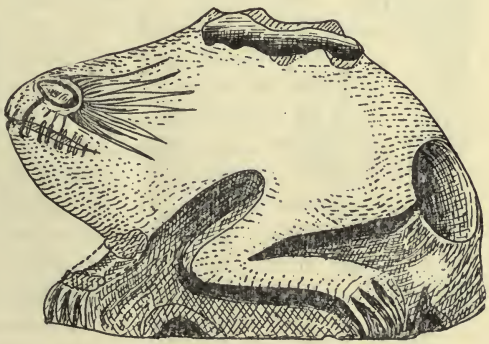


Fig. 71.
Frog Pipe, Author's Coll.

hole having been somewhat smoothed in order that the stem might fit tightly. The legs, mouth and eyes are in bold relief, the surface evidently having been worked into shape by the use of a stone hammer, but subsequently smoothed, the hammer marks, in places, remaining quite distinct. The object faces from, instead of towards the smoker, as is common with mound pipes and the older types of rectangular specimens. Animal forms are rare in Wisconsin, especially those representing the frog, while south of the Ohio River none are more common than those of this creature.

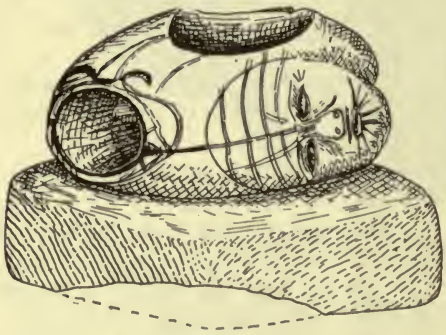


FIG. 72.
Effigy Pipe, Author's Coll.

Fig. 72, a most remarkable specimen, found near Berlin, Green Lake county, is of yellow sandstone, considerably weathered, 2½″ high, 4″ long, 3″ wide, and has a flat base an inch high upon which the bowl is mounted. The bowl-cavity is 1½″ in diameter at the top, the stem-hole nearly as large, and each is gouged out and irregular in shape. The stem-hole represents the open mouth of some animal, eyes and lips being in bold relief. A similar face, with the mouth closed, ornaments the opposite end of the bowl, and on each of its sides is a finely carved face with features in bold relief, having incised lines extending from the corners of the mouth and across the forehead. This specimen is somewhat cracked, probably from the heat of smoking, and contains no marks that indicate the use of metal tools in its manufacture.

FIG. 73.
Effigy Pipe.
Author's Coll.

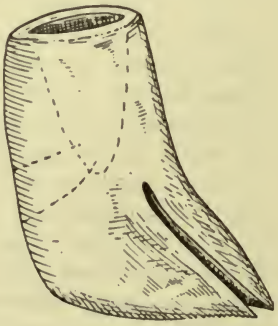


FIG. 74.
Effigy Pipe.
H. P. Hamilton's Coll.

Fig. 73, from Marquette county, is of catlinite, 2″ high, with a cone-shaped stem and bowl-holes, each half-an-inch in diameter at the outside, but tapering to a very small opening where they meet. This specimen is carved to represent the head of a mouse.

Fig. 74, from Winnebago county, of brown sandstone, carved in the shape of a deer's hoof, and is 2″ long and 1½″ wide at the base. This pipe has a cone-shaped stem and bowl-cavities each about ⅝ of an inch in diameter at the surface.

Fig. 75, marked "Wisconsin" is of catlinite, 2¼″ long, with a cone-shaped stem and bowl-holes, each slightly broken away. This pipe was evidently intended to represent some animal.

Fig. 75.
Effigy Pipe, Wyman Coll., Field Mus.

Fig. 76, from Manitowoc county, is of dark sandstone, 4″ high, and carved to represent the head of some animal. Its sides and front have engraved figures, deep holes being drilled to represent the eyes and nostrils, possibly for the reception of pearl or bone settings.

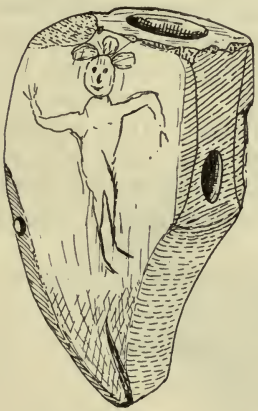


Fig. 76.
Animal Pipe.
Author's Coll.

Fig. 77, from Crawford county, is of grey steatite, 3½″ high, and carved to represent the head of some animal. This pipe appears to have been pecked into shape, and afterwards smoothed by grinding. Its bowl-cavity is conical in form, ¾″ in diameter, and irregularly gouged out. Animal pipes of this type are widely distributed.

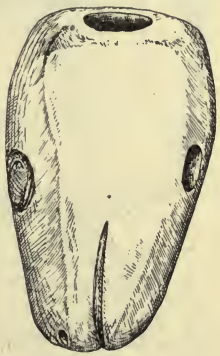


Fig. 77.
Animal Pipe.
Author's Coll.

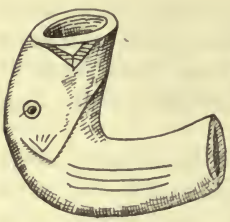


FIG. 78.
Animal Pipe.
S. D. Mitchell's Coll.

Fig. 78, from Waupaca county, of catlinite, 2½" long and nearly as high, is carved to represent the head of a panther, and is doubtless the work of historic Indians.

Fig. 79 was found by William Buitlift, Esq., while digging a ditch on the shore of Lake Waubesa, Dane county, and was collected by W. H. Ellsworth. It is of grey limestone 3" long, with a flat base and is carved to represent the head of some animal, the eyes being most prominent. This pipe has indications of great age.

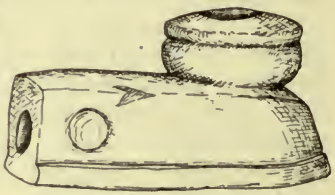


FIG. 79.
Animal Pipe, Author's Coll.

Fig. 80, from Sheboygan county, is of steatite, highly polished, shaped like a high moccasin and is 2" high, the top of the bowl being ornamented by four groups of 3 cross lines each.

FIG. 80.
Moccasin Pipe.
R. Kuehne's Coll.

Fig. 81, a much weathered example from Marquette county, was found by Mr. Louis Dart, near Packwaukee, and secured for the author by the well known collector, F. M. Caldwell, of Princeton. It is of dark sandstone, 2" long and 1½" high, with an oblong bowl excavation made by the gouging process and is shaped like an Indian moccasin.

Fig. 82, marked "Wisconsin" is of catlinite, 2" high, carved to represent the head and neck of a bird, and is doubtless historic Indian work.

FIG. 81.
Moccasin Pipe.
Author's Coll.

Fig. 83, claimed to have been found by Mrs. Wilhelmine Hafemeister, in Dodge county, in 1854, doubtless an exotic, is of black slate 4" high, with perforated projection, carved to represent the bird's feet and to which ornaments may have been

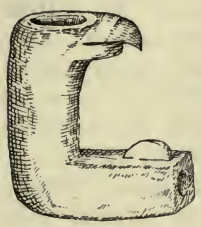


FIG. 82.
Bird Pipe, Wis. Hist. Society's Coll.

attached. The form and work are modern. Two similar examples, in the New York State Museum, were found in that state. The Canadian collection at Toronto contains a pipe of this design.

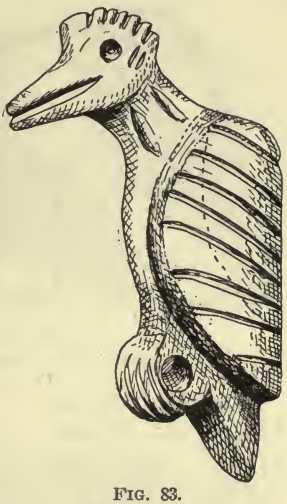


FIG. 83.
Bird Pipe.
O. T. Lohman's Coll.

Fig. 84, from Cumberland county, Tennessee, is of compact yellow sandstone, 6″ long, 4″ high, with large conical stem and bowl-holes, flat base, and carved head on the top of the stem.

Fig. 85, from Muskingum county, Ohio, is of black granite, carved to represent a bear facing the smoker. This rare specimen was pecked into shape, having a rough finish,

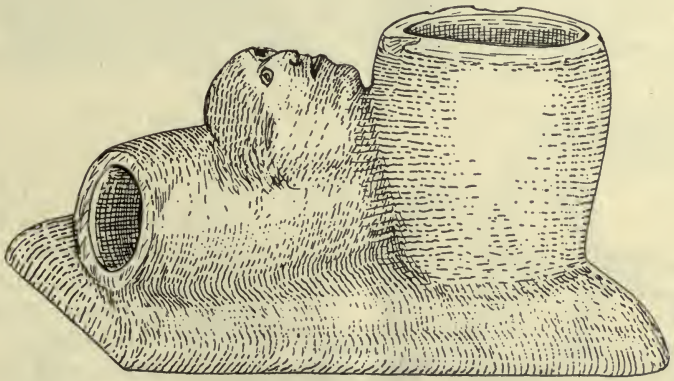


FIG. 84.
Effigy Pipe. Author's Coll.

conical stem and bowl excavations, and shows no evidence of the use of metal tools in its manufacture.

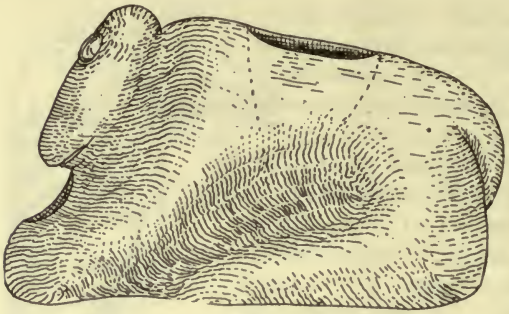


FIG. 85.
Animal Pipe, Author's Coll

Fig. 86, from Kyles Ford, Tennessee, is of yellow sandstone 5½" long, carved to represent the head of a mountain goat, facing away from the smoker. This specimen is badly weathered and was doubtless made with primitive tools.

Fig. 87, from the bank of Chinch river, Claiborne county, Tennessee, near Hodges Ford, is of a fine grained sandstone, 6" long, carved to represent an Indian in a sitting posture, facing the smoker and holding a large urn-shaped bowl.

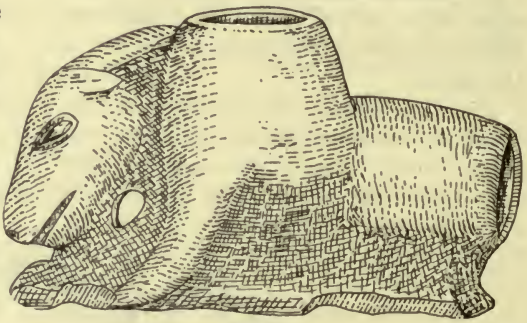


FIG. 86.
Animal Pipe, Author's Coll.

FIG. 87.
Effigy Pipe, Author's Coll.

The pipe shown in the frontispiece was plowed up in Calhoun county, Michigan, in 1885, and is 7" high, 4" wide and carved to represent a seated figure holding a large urn-shaped bowl.

The figure faces the smoker. Just below the stem-hole is the head of some animal, possibly of the fox. This pipe was made by the pecking process, as its very rough surface indicates. It is of hard compact sandstone, black with age, and badly pitted from the action

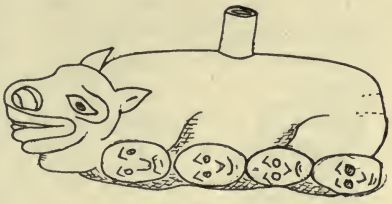


FIG. 88.
Totem Pipe, Author's Coll.

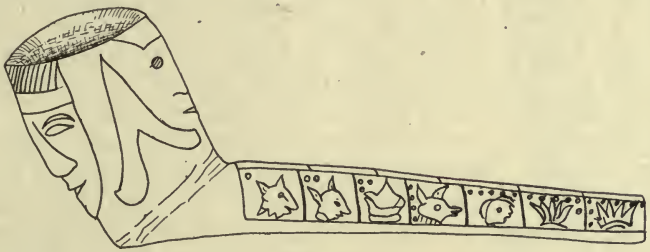


FIG. 89.
Aztec Bone Pipe, Author's Coll.

of the elements. Good judges pronounce this one of the oldest and finest examples of effigy or image pipes in existence.

A finely carved idol pipe 4½" high, of polished serpentine,

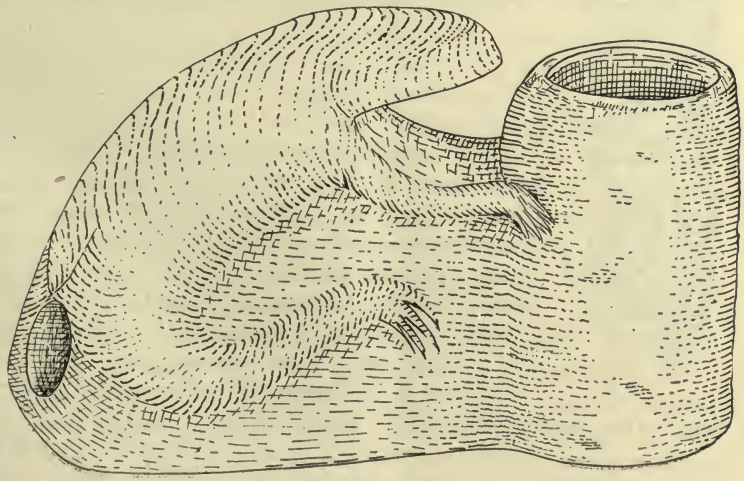


FIG. 90.
Frog Pipe, Author's Coll.

in the J. P. Schumacher collection, was recently found near Sturgeon Bay, Door county.

FIG. 91. Northwest Coast Pipe, Author's Coll.

Fig. 88, a fine example of Northwest Coast historic Indian work, collected by the author at Killisnoo, Alaska, is 10″ long, 6″ high, made of wood, having a bowl of iron known to have been a portion of a musket used by the unfortunate garrison of Russian soldiers, massacred at Sitka, during the latter part of the 17th century. This specimen was originally the property of Chief "Great Bear," who had eight wives, and the four faces carved on each side of the pipe are supposed to represent some of them.

Fig. 89, from Southern Arizona, secured by Mr. Charles Quarles, of Milwaukee, is of bone, beautifully carved. The bowl has upon it two human faces, one facing the smoker, and the other on the opposite side. The thirteen characters of the Azetec calendar are deeply engraved into the stem, which is cemented to the bowl by a substance as hard as flint. This specimen is discolored by age. A similar example in the author's collection having but one face on its bowl, came from the same locality. These pipes may have been used for ceremonial purposes.

Fig. 90, found by A. L. Gruhake, in Lancaster county, Pennsylvania, in 1892, is of limestone, 7″ long, 4½″ high, carved in the form of a frog holding a large bowl. This pipe has the appearance of great age. It was made by the pecking process, has a conical stem and bowl-holes, and weighs 4½ pounds.

The pipes found along the northwest coast of America are most interesting in style, and made of a great variety of material such as stone, ivory, bone, antler, and of these ma-

terials in combination with metal. Among the most remarkable carvers are the Haida Indians, who have been known for their artistic productions for centuries.

Fig. 91, from Victoria, B. C., is of black slate 11″ long, 2″ high, 1½″ wide, and appears to have seen long service. The bowl opening is ⅝, and that of the stem about ⅜ of an inch in diameter. This specimen is a curious combination of heads and arms, and represents the totem of some Indian family. The carving of totem poles was already an old custom with the natives of Southeastern Alaska when the whites first visited that country. At what date the art was applied to their pipes is uncertain. The Japanese are known to have had intercourse with these people, and may have influenced their carving.

Although the author's cabinet contains many unique and interesting pipes collected in northern Alaska and other parts of America outside of Wisconsin, they will not be treated in this paper, an occasional specimen only being illustrated for the sake of comparison, and for the information of the student.

BRIDEGROOM OR DOUBLE-STEMMED PIPES.

In the South and East bridegroom pipes usually have two bowls, while Wisconsin examples have but one bowl with two stem-holes. To smoke a double-stemmed pipe on one's wedding day was an ancient Dutch custom. Such pipes being employed afterwards only at wedding anniversaries.

Mr. McGuire mentions two examples in the celebrated Bragge collection, now in the British Museum, which are referred to as "still decorated with the ribbons placed upon them upon a certain festal day that faded into nothingness two centuries ago. Smoked in augury of a happy future upon the wedding day, it was too sacred to be touched again save on the recurrence of the anniversary of the momentous event" (p. 546). The double-stemmed pipe of the primitive Indians doubtless figured in some other ceremony than that of matrimony. It takes its name from its resemblance to these pipes.

Fig. 92 was found by Mr. Chas. Stevens, in 1880, in the town of Wyocena, Columbia county, 4 ft. under ground, while digging a cellar. This rare and interesting specimen is of steatite, about

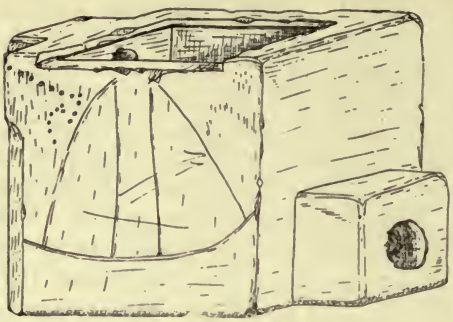


FIG. 92.
Double-stemmed Pipe, Author's Coll.

2″ square, and with half inch projections reinforcing each stem-hole. The bowl excavation is square in form, and fitted for a slide cover. There are two stem-holes, one at the bottom of the bowl and the other on the opposite side near the top. This pipe appears to be of aboriginal manufacture.

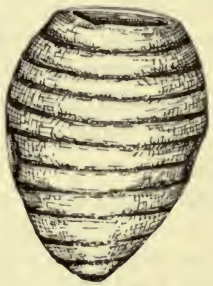


FIG. 93.
Double-stemmed Pipe, Author's Coll.

Fig. 93, from Sauk county, is of sandstone, 2½″ high, with an egg-shaped bowl, ornamented with a spiral groove. Its two stem-holes are conical in shape, and were made with stone drills.

Fig. 94, an interesting example from Dane county, is of bone poorly preserved, an inch square, 3″ long, and highly ornamented with deep carving, and having two stem-holes.

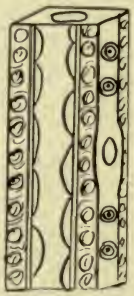


FIG. 94.
Double-stemmed Pipe, Author's Coll.

Fig. 95, from near Petway, Cheatham county, Tennessee, weighs 5½ pounds, and is one of the finest examples of double-stemmed pipes in existence. It is of limestone, black with age, much weathered, evidently made by the pecking process, 7″ long, 6″ high, with two conical-shaped stem-holes, one at each end of the pipe, above each of which projects a rudely carved human head. This specimen, like all great pipes, has a flat base, and was not intended to be held in the hand when in use.

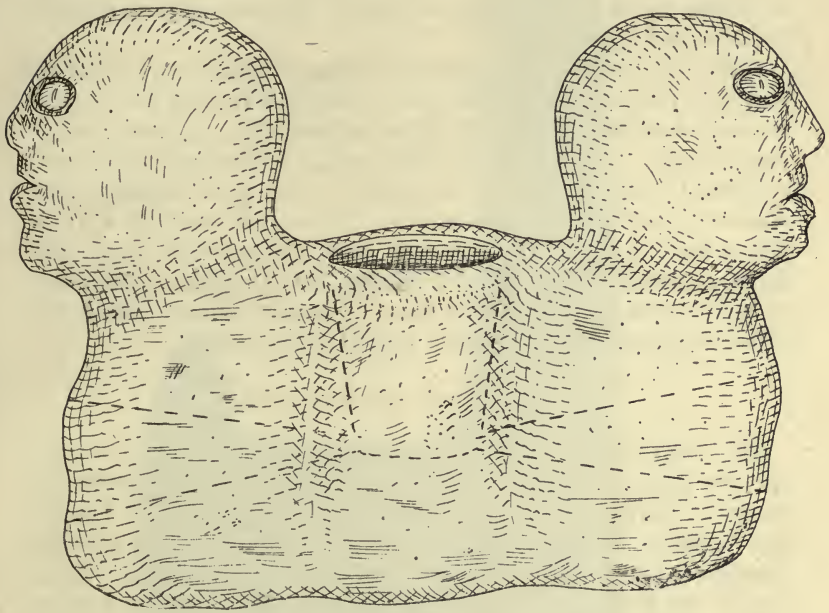


FIG. 95.
Double-stemmed or Bridegroom Pipe, Author's Coll.

PLATFORM OR MONITOR PIPES.

This type of pipe is distributed throughout the Eastern United States and is often found in the mounds and other aboriginal burial places of the Ohio valley. Nearly all the pipes of this class secured in Wisconsin, are surface finds. Their distinguishing characteristic is the platform-shaped base. The monitor pipe derives its name from its resemblance to the well known war vessel of that type. Because of its frequent occurrence in mounds, the curved base form is often called the mound pipe, but contrary to many writers, it is not the oldest type taken from these tumuli. Its beauty of design and proportions make it one of the most interesting of primitive pipes. The author has grouped the large number of forms, found in this state, under three sub-classes.

The material from which they are usually made is stone that

is tough, but soft in texture and easily worked, such as steatite, chlorite and catlinite.

Until within the last decade the Mound Builders were regarded as a race distinct from that of the American Indian, but patient research has brought the weight of authority to support the opposite theory. Many of the oldest groups of mounds in this geographical location contain no pipes. None were found in the Racine groups, which the late Dr. F. R. Hoy claimed were of the oldest in the state, although over 100 mounds were carefully explored. The custom, among the American aborigines, of burying the pipe with its owner possibly became established after the older groups of these tumuli were erected.

STRAIGHT-BASE MONITOR PIPES.

Fig. 96, plowed up in an early day by Mr. L. Craigs, on section 30, Eagle township, Richland county, is of drab steatite and finely polished. It is 9" long, 2¾" wide at the base, 3" across the flange of the bowl, with the bowl cavity ¾" in its greatest diameter, and made with a tubular drill. This is certainly one of the finest examples of the straight base monitor pipe as yet found in Wisconsin. One in the author's collection, from a mound in Vernon county, is of the same length and form, as the last described but 4¼" wide.

FIG. 97.
Straight-base Monitor, Author's Coll.

Fig. 97, from Marinette county, of steatite, is 3½" long, the base 1½" wide and perfectly flat. The bowl cavity has a finely rounded bottom, nicely polished. An example 4" long, in Hon. J. G. Pickett's collection, is from Winnebago county. A broken specimen, in the Milwaukee Museum, from Calumet county, is of steatite, and was originally about 5" long. A second example from Milwaukee county, is on deposit in the same place.

Fig. 98, said to be from the northern part of the state, is of a soft mica slate, 5½" long, 2" wide with a low bowl and pronounced keel. The stem-hole is ¾" in its greatest diameter and tapers to 1/16". This pipe was evidently used with the addition of a stem.

FIG. 96.
Straight-base Monitor Pipe, Logan Coll., Beloit College.

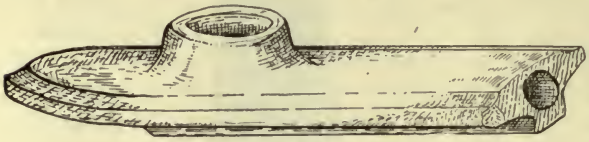


FIG. 98.
Straight-base Monitor Pipe, Author's Coll.

Some pipes have a slightly rounded base with a ridge along their tops, necessarily so, as the stem-hole is usually large. A study of this type will convince the most skeptical that they are the oldest forms of platform pipes.

FIG. 99.
Rounded-base Monitor Pipe, Author's Coll.

Fig. 99, a surface find from Jefferson county, is of mottled steatite, 5″ long, base an inch wide, bowl cavity made with solid pointed drill, stem-hole half an inch in its greatest diameter, and showing the striations distinctly. There is no evidence of metal tools having been used in its manufacture. Almost a duplicate of the last described, in the author's collection, is a surface find, from Crawford county.

An example in the Logan collection, Beloit College, taken from a mound near Packwaukee, is of steatite, 2½″ long, and peculiar in having an elliptical bowl-cavity.

Fig. 100, a surface find from the town of Wauwatosa, Milwaukee county, is of greenish steatite with straight rounded base

FIG. 100.
Straight-base Monitor Pipe, Author's Coll.

5¾″ long, and 2″ broad. The long or handle end tapers to its extremity upon which stands a spool-shaped bowl 2½″ high, with a pronounced projecting flange. The bowl cavity, an inch in width, is made with a sand drill. The stem-hole is about 3/16″ in diameter. This is doubtless the finest example of its class as yet obtained in the state. It is peculiar in having the bowl nearest the stem end.

A fine specimen in the Logan collection, with the bowl very near the stem end, is 5″ long, of greenish steatite, and is peculiar in having the flange of the bowl squared off where it would come in contact with the smoker's face. This pipe was plowed up on the farm of Mr. Geo. W. Ogden, at the foot of Lake Koshkonong, in 1860.

An example 4″ long, in the author's collection, from Manitowoc county, is of Barron county catlinite, and of precisely the same shape as the above described. A very similar pipe from Winnebago county, is in Hon. J. G. Pickett's collection.

A fine example in Mr. H. P. Hamilton's collection, from Waupaca county, of Barron county catlinite, is 3″ long, with a spool-shaped bowl placed on the middle of its rounded base. Its bottom is ornamented by numerous equi-distant lines which cross each other diagonally. A similar specimen, without any basal ornamentation, is in the Milwaukee Museum. Three examples, of steatite, in the author's collection, were taken from a mound in Marquette county. The writer's sketch-book shows several other specimens of this form, all being Wisconsin finds.

FIG. 101.
Straight-base Monitor Pipe, Author's Coll.

Fig. 101, from near New Castle, Indiana, is of compact drab slate 4″ long, having a stem peculiar to this type, and a bowl of the monitor shape. It has a flat base, triangular in section. Although this pipe is finely finished, traces of the marks made by the use of metal tools are discernible.

Fig. 102, from a mound in De Soto county, Mississippi, is of calcareous limestone 4″ high, with a wide, irregular flange around the bowl cavity and a partly broken base 2″ wide. The stem-hole is drilled through on the side of the base instead of following its center.

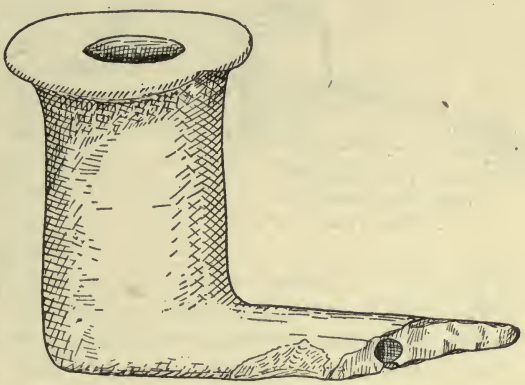


FIG. 102.
Mississippi Mound Pipe, Author's Coll.

SHORT-BASE MONITOR PIPES.

The monitor pipes here described are characterized by a very short base. A sufficient number of those have been found in Wisconsin to warrant their being included in a sub-class.

Fig. 103 from Crawford county, is of steatite with a flat base 1¾″ long, the bowl 1¼″ high, and is finely finished. A similar example from Sauk county, is in the American Museum of Natural History, New York City.

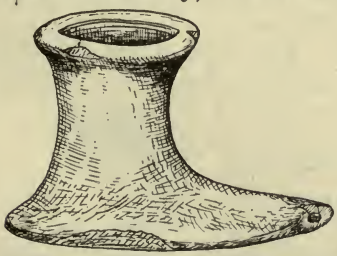


FIG. 103.
Short-base Monitor. Author's Coll.

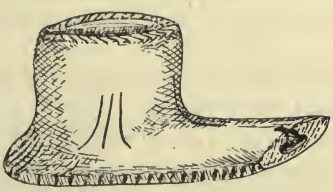


FIG. 104.
Short-base Monitor.
Author's Coll.

Fig. 104, from Marquette county, of steatite, 1¾″ long with a very small bowl, is ornamented at its top by notches or indentations. The base is rounded and with numerous notches on each edge. A similar example in the author's collection, from Adams county, has a small bowl and notched base.

FIG. 105.
Short-base Monitor.
Author's Coll.

Fig. 105, from Washington county, is of steatite, ¾″ long, and has a flat, notched, base. The bowl, which leans away from the smoker, is ornamented with incised lines.

An unornamented example in the author's collection, of gray slate, and of like size, with the last described, is from Winnebago county. A third, in Mr. W. W. Radley's collection, is from Portage county.

Fig. 106, a perfect example, in the author's collection, from a mound in Marquette county, is of steatite, and less than an inch in length.

FIG. 106.
Short-base Monitor.
Author's Coll.

Fig. 107, from Columbia county, a mound find, 2¾″ long, is of steatite, with a short rounded base and square bowl set near its end. A duplicate of the last described, in the author's collection, is from Fond du Lac county.

FIG. 107.
Square-bowled Monitor, Author's Coll.

A fine example with a short rounded base and square bowl, in the Wisconsin Historical Society's collection, marked "Wisconsin," is of red catlinite.

Fig. 108, from Sheboygan county, found by Mr. Chas. Meyer, three miles south of the village of Adell, in 1898, is of rich purple Barron county catlinite, 2″ long and equally as high, with a square bowl and short rounded base. Its bowl cavity is cone-shaped, evidently enlarged with wooden drill and sand. The stem-hole is but an eighth of an inch in diameter. This specimen shows much use, the incised ornamentation on the front of the bowl having been almost worn away. If metal tool marks existed they have long since disappeared.

FIG. 108.
Short-base Monitor Pipe.
Author's Coll.

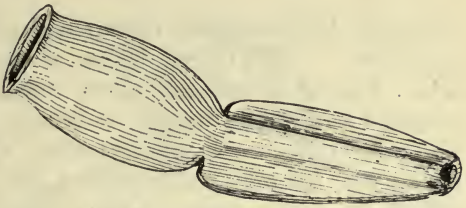


FIG. 109.
Type of Monitor Pipe, Author's Coll.

Fig. 109, found near Buffalo creek, Nelson county, Virginia, of dark schist, is 5″ long. It has an alate stem running the length of the center of which is a pronounced ridge. "The largest specimen of this type so far encountered is probably a "Great Pipe," having a bowl 8″ long, being upward of 17 inches in total length, which was found in a mound in Marion county, Kentucky, collected by Mr. William T. Knott" (McGuire, p. 470).

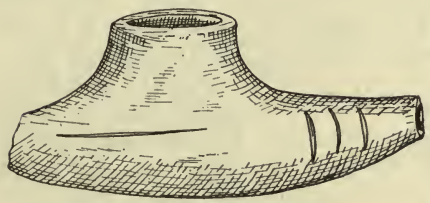


FIG. 110.
S. D. Mitchell's Coll.
Short-base Monitor Pipe,

Fig. 110, found in the town of Aurora, Marquette county, is of drab slate, 2½″ long, the end broken away, base rounded, and is ornamented near the stem end on each side by three deep grooves. A second example of the same shape in the author's collection, found by Mr. August Bartle, in the town of Scott, Sheboygan county, in 1901, is of drab steatite. The top of its bowl is ornamented by four sets of cross lines, of three lines each. The bowl cavities in each pipe are irregularly conical in shape.

CURVED-BASE PIPES.

These pipes have an arched base usually 2 to 4 inches long, with a bowl, often finely carved in effigy form, located equidistant from the ends. No product of aboriginal handicraft shows greater skill in the carving of stone than may be found in the curved-base pipe. The bowl cavity was usually made with a tubular drill; and the stem-hole rarely exceeds an eighth of an inch in diameter. The Ohio Valley was probably one of the manufacturing centers of the mound pipe. Squier and Davis found nearly 200 in one mound near Chillicothe, Ohio, and in their

"Ancient Monuments of the Mississippi Valley," described them as follows: "The bowls of most of the pipes are carved in miniature figures of animals, birds, reptiles, etc. All of them are executed with strict fidelity to nature, and with exquisite skill. The otter is shown in characteristic attitude, holding a fish in his mouth; the heron also holds a fish, the hawk grasps a small bird in its talons, which it tears with its beak, the panther, the bear, the wolf, the beaver, the otter, the squirrel, the raccoon, the hawk, the heron, crow, swallow, buzzard, paroquet, toucan, and other indigenous and southern birds, the turtle, the frog, toad, rattlesnake, etc., are recognized at first glance. But the most interesting and valuable in the list are a number of sculptured heads, no doubt faithfully representing the predominant physical features of the ancient people by whom they were made" (p. 152). A very fine series of such pipes is in the Davenport Academy of Sciences collection, at Davenport, Ia.

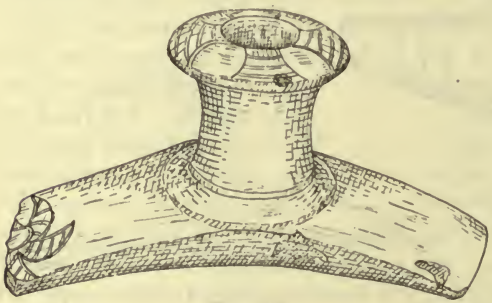


FIG. 111.
Curved-base Pipe, Author's Coll.

Fig. 111 is of black slatey rock, 5" long, base 2" wide, with a spool shaped bowl of about the same height, and is of the typical Ohio valley mound pipe form. This specimen was taken from the same mound as the handle pipe shown in Fig. 115. It is doubtless one of the finest examples as yet obtained in Wisconsin. Its base has the form of a low arch rounded towards its top and is ornamented at one extremity by a four-pointed star-shaped figure. The bowl has a pronounced flange ornamented on its top by a four-sided pattern. Its stem-hole is less than an eighth of an inch in diameter, that being about the usual size for mound pipes.

Fig. 112, from Winnebago county, is of dark steatite, 3" long, with the bowl carved to represent the head of some animal. This interesting specimen was found a few miles from Pickett

station, and is one of the few curved-base mound pipes in effigy form as yet found in in Wisconsin.

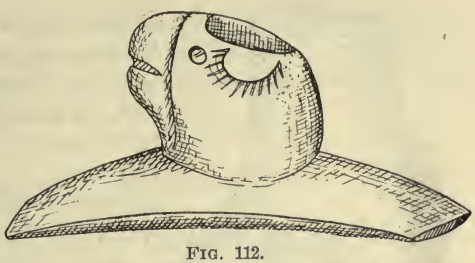


Fig. 112.
Curved-base Pipe, J. G. Pickett Coll.

An unornamented example, 2½″ long, in the author's collection, from Marquette county, is of red catlinite. A A similar specimen, from Washington county, is of steatite. A broken pipe from Sheboygan county is interesting because, after the stem end had been broken away, a new stem hole was drilled from the opposite end. This, apparently, resulted in breaking the base. A fine unornamented example owned by Mr. E. A. Hersch, from Milwaukee county, 3″ long, is of drab steatite.

In the Logan collection is an example of grey steatite 2¾″ long, from Washington county; a second, of the same size and form from Fond du Lac county; a third 4″ long, of green steatite, from Salem, Kenosha county, and a fourth, originally 5″ in length, from Washington county. All are surface finds, and are without ornamentation. The last mentioned is interesting because after the stem end was broken away a new stem hole was drilled through the base from the opposite end. In so doing the base, although exceptionally thick, became fractured. A fine example, of catlinite, from a mound at Prairie du Chien is in the collection of the Davenport Academy of Sciences.

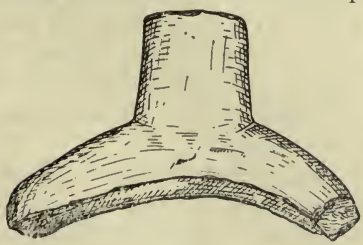


Fig. 113.
Unfinished Curved-base Pipe.
Horace McElroy's Coll

Fig. 113, an unfinished pipe from Jefferson county, is of diorite, 4″ long. It is interesting as demonstrating that a specimen was at first rudely blocked out, then drilled, after which it was ground down and polished. This would indicate that the wonderful skill accredited to the aborigines in drilling through a very thin plate of stone was not always due them, nor, as is often asserted, was a metal drill a necessity in the successful performance of the work.

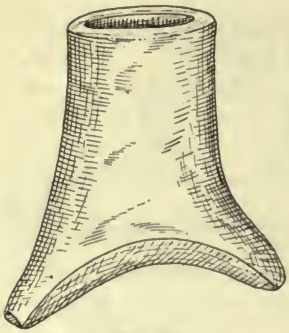


FIG. 114.
Curved-base Pipe.
John Gerend's Coll.

Fig. 114, a surface find, from Sheboygan county, is 2″ long, 2½″ high, of drab steatite, and polished from use. This style of pipe is interesting in having a very short, wide base and tall bowl. A similar example in the author's collection, from Marquette county, is of dark steatite.

A very fine curved-base pipe, in the author's collection, 2½″ long and equally as tall is of yellow porphyry. It was found by Geo. H. Baker, at Brothertown, Calumet county, in June, 1905. A similar example from Rock county is in the collection of W. P. Clarke of Milton.

Of forty-five curved-base pipes, found in Wisconsin, shown in the author's sketch book, all were found in the southern half, and thirty-nine of the number in the southeastern part of the state. Many were secured adjacent to streams used by the Indians as canoe-routes to the Mississippi; or near the shore of Lake Michigan. This fact seems to be but coincident, and no evidence that the origin of this pipe is in any way due to French influence, as is suggested by some writers on the subject. This form of pipe is found most abundantly along the streams that Father Marquette and the early French traders did not traverse. Green Bay was, for half a century, the headquarters of the French traders, yet not a single specimen of this type so far as the author has been able to learn has been encountered in that vicinity. While the lands occupied in early historic times, by the Chippewas and Sioux, do not produce it, the country of the Sacs, Foxes, Winnebagoes and roaming tribes, has furnished nearly all the examples known to the author.

Some few pipes of this form may indicate European influence, yet the weight of procurable evidence marks the type as of pre-Columbian origin. Mr. McGuire suggests Lakes Michigan or Erie as the point of origin of the mound pipe rather than the region about Chillicothe, Ohio, or Davenport, Iowa (p. 527).

Southeastern Wisconsin may have been one of the centres of manufacture. Examples from this region have a tendency to

flattened bases, and are seldom elaborated by carvings. But few exhibit evidence of the use of metal tools in their manufacture. and all are probably of greater age than those of animal and bird forms, predominating in other districts.

HANDLED PIPES.

In this class the author has placed a small number of very interesting pipes which are provided with an elongated base or handle, by which they were held or supported; and in most examples with a short mouthpiece also. Some are without the latter feature, and were probably furnished with a short stem of wood or bone. They differ considerably as to general shape and manner of ornamentation. A few have the bowls artistically carved to represent the head of a human being, a fish or an animal.

A small number of similar pipes have been described from other sections of the United States. Twenty-two examples have been found in Wisconsin, no two of which are of exactly the same pattern. No theory of their authorship among the Wisconsin or other Indians has as yet been advanced. Even though originally limited to any one tribe, so convenient a form of pipe is sure to have been copied by individuals belonging to others.

Authorities who have written on the subject, seem to regard this type of pipe as modern. Some of the Wisconsin finds contain no marks of metal tools, are unpolished, and have all indications of being prehistoric, while others are new in appearance, finely polished, and show evidence of the use of metal tools in their manufacture.

As to the probable age of this type of pipe, Mr. Beauchamp, in describing an example from Pompey, New York State, says: "Like all with this platform and basal projection, it is a recent form" (Vol. 4, No. 18, p. 49).

Mr. McGuire shows a cut of one from a mound in Loudon county, Tennessee: "On the surface of which file marks are quite distinct." "The specimen is 2½" high and 2" long" (condensed). "Another pipe of this character was found in Newark, Ohio, on the bowl of which there is an animal head."

"A specimen of the same type in the collection of the Davenport Academy of Sciences was found in Jo Daviess county, Illi-

nois, and is made of pipe-stone of slightly greenish tinge'' (p. 486).

Mr. Boyle illustrates an example in the Provincial Museum Report for 1894—95, (p. 60), of soapstone 3¾" long with a flattened handle, found in Lanark county, Ontario.

FIG. 115.
Handled Pipe, Author's Coll.

Fig. 115 represents one of the oldest handled pipes that has come under the writer's observation. This interesting specimen was taken from a burial mound, on the Nicholai farm, Big Bend, Waukesha county, in July, 1902, by Mr. La Fayette Ellerson. With it was found a curved-base mound pipe, shown in Fig. 111.

The skeleton with which these interesting specimens were found, was so badly decomposed that only a few fragments of bone remained. This burial was without doubt an original interment. Each pipe was incrusted with a black substance. This specimen is of a fine grained yellow sand-stone, unpolished now black on its surface from use and age, and exhibits numerous small checks or cracks. When first taken from the mound the greatest of care had to be exercised to prevent its falling to pieces. This pipe is 4″ high, 3½″ wide, an inch thick, and contains a perforation through which the forefinger of the smoker could be slipped. Its bowl is finely carved to represent a bird, probably a fish-hawk or crow. The bowl cavity is conical in shape and was drilled with a stone and sand drill. The stem-hole is ⅛″ in diameter, and the specimen shows no marks of metal tools.

Fig. 116, found by Mr. O. S. Ludington, near Prairie du Chien, of red sandstone, formed mainly by the pecking process, into the shape of a fish, and is 5½″ long, 2½″ wide and 1″ thick. Its bowl-cavity is ¾ of an inch across, the stem-hole nearly as large, and both are cone-shaped, having been made with a stone drill. This specimen is not worked down smooth, nor does it exhibit file marks.

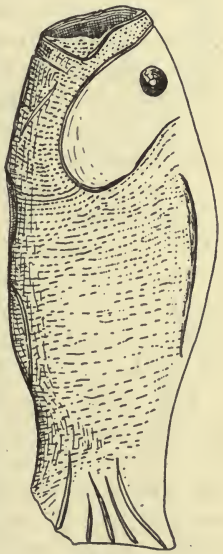


Fig. 116.
Handled Pipe.
Author's Coll.

Fig. 117 is also suggestive of a fish. It was found in the township of Somers, Kenosha county, is made of pink steatite, and has striations on its stem that are possibly file marks.

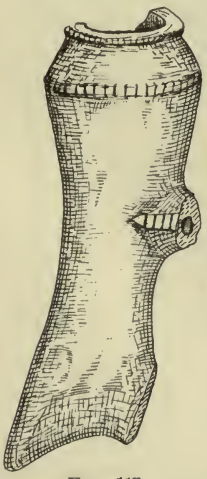


Fig. 117.
Handled Pipe.
Author's Coll.

A third example of allied form, of catlinite, now in the author's collection, was found near Horicon. This specimen is very rude, shows no file marks, but its bowl-hole appears to have been enlarged and deepened by use of a brace and bit.

FIG. 118
Handled Pipe.
Author's Coll.

Fig. 118 was found by Mr. E. A. Thomas in Crawford county, in the year 1892. This specimen, of catlinite, is 2½" long, with a conical stem-hole larger than the bowl-cavity. It exhibits no marks of metal tools, is not polished, and from all appearances, is very old. A very similar example in the author's cabinet, found in Washington county, has a fine polish, small stem-hole and shows slight marks, possibly made by metal tools.

Fig. 119, collected by Mr. W. H. Elkey of Milwaukee, was found on the surface, in Vernon county. This very fine specimen is of steatite 8" long, the bowl 1½" square at the top, is provided with a flat projecting mouth-piece, has a fine polish, and exhibits no marks but what could have been made by the use of sand-stone. Its fine finish leads one to believe that it may have been made within the last two or three centuries. The drawing of a pipe, in the National Museum collection, from Sun Prairie, Wis., with a broken bowl, but having a similarly shaped handle, was sent to the writer by Mr. J. D. McGuire.

Fig. 120, found in Dane county, made of brownish steatite, finely polished, is 6" long, the bowl 1¾" across. The short mouthpiece is partly broken away. This specimen has all the earmarks of Indian make, yet it exhibits a fair polish and striations that suggest the use of metal tools in its manufacture. It may be considered as of no great age.

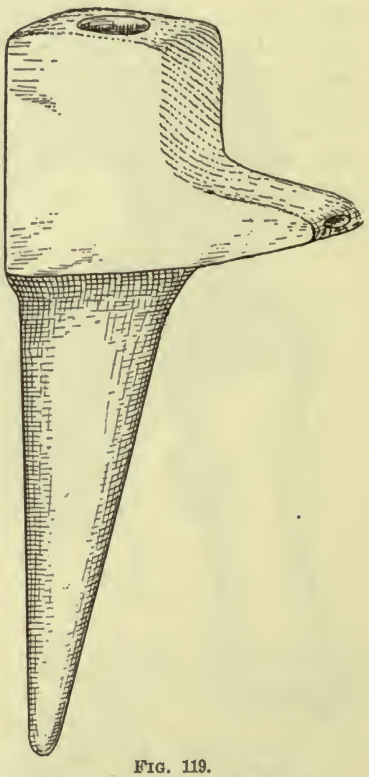


FIG. 119.
Handled Pipe, Author's Coll.

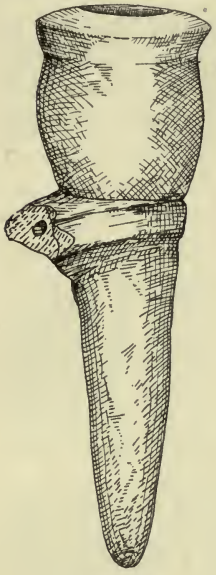


FIG. 120.
Handled Pipe.
Author's Coll.

An example of similar shape, 3¼″ long, found in Jefferson county, is now in the Milwaukee Museum, and another, of the same shape in the Wisconsin Historical Society's collection at Madison.

A fine specimen, without the modified base, from Marathon county, is in Mr. H. P. Hamilton's collection. This pipe has a cone-shaped bowl-hole, is of dark grey steatite, exhibits a good polish, but no metal tool marks. A portion of its handle is broken away.

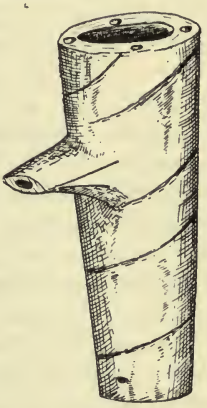


FIG. 121.
Handled Pipe.
Wyman Coll.

Fig. 121, from La Crosse county, now in the Wyman collection on deposit at the Field Columbian Museum, is of banded serpentine 7¾″ long, with rounded bowl, terminating in a flat end, and with a short mouth-piece.

FIG. 122.
Handled Pipe.
Author's Coll.

Fig. 122, an unfinished specimen, of catlinite, found on the surface, by Mr. August Barsack, in Marquette county, in the year 1901, is 4″ long, with bowl and stem-holes showing evidence of having been made with a stone drill. The entire exterior of this specimen shows marks of rude sawing with flint chips, and finely illustrates the primitive working of catlinite.

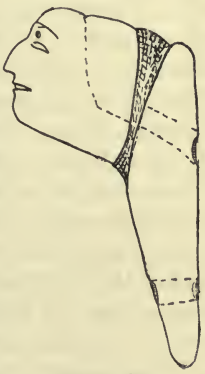


FIG. 123.
Handled Pipe.
W. W. Radley's Coll.

Fig. 123, said to have been found in Ashland county, on the

shore of Lake Superior, is made of black slate and intended to be used with the addition of a short stem. Its bowl is 4" long, and contains a remarkable representation of a human face. Near the end of the handle is a perforation by which ornaments were probably attached.

DISK PIPES.

This is a most interesting class of pipes, the typical examples having a circular face, widened out, in some cases, to extravagant proportions. When in use the disk faced the smoker, which probably accounts for its often having a finer finish than does the remainder of the pipe, and for its being often ornamented with engraved figures. In Wisconsin are found three well-established varieties of this type.

Mr. McGuire states: "The larger cavity being in a line parallel to the face of the disk would suggest that the stem was intended to be inserted through the disk, around which a thong would be tied to hold it more firmly in position, the depth of the disk being insufficient to hold a stem unless it were bound in some way" (p. 487).

In a large number of Wisconsin examples of disk pipes the stem-cavity, which is usually of about the same diameter as that of the bowl, extends from the disk to the bowl in an upward curve, and is funnel-shaped, smoothly finished and usually polished for a considerable distance. The angle of the stem-hole, together with the fact of its being polished and seldom circular in form, would seem to indicate that it was not made for the reception of a detachable stem or mouthpiece, and that when in use the pipe was held to the lips, the tongue of the smoker coming in contact with the disk or interior of the stem-hole. With but two exceptions pipes of this class found in Wisconsin, coming under the author's observation, have remarkably thin disks. But a few of those, having a polished but circular stem-hole, would receive and firmly hold a mouth-piece.

The disk pipe, in the writer's opinion, is an old type and was in use by the aborigines, of this country, long before the coming of the whites. Authorities, however, differ as to this conclusion. Gen. Gates P. Thruston suggests that the stem-holes of the disk

pipe, being funnel-shaped, it may safely be regarded as an old type (A. of T., p. 201).

Mr. J. D. McGuire writes: "The shape is so suggestive of the jew's-harp, an instrument used extensively in trade with the Indians, as to indicate that the pipe itself is modeled after the form of this primitive musical instrument, even though the file marks, so common on many of the pipes, are absent from those coming under the writer's observation" (p. 488).

A careful study of the several forms of this type convinces the author that it was not modeled after the jew's-harp. Of the twenty-eight examples in the author's collection, when examined with a powerful glass, all exhibited innumerable marks and scratches, that could have been made by the use of a piece of sandstone or flake of flint. In no case were file marks found.

Mr. McGuire states: "Finding them of catlinite so far from the quarries would indicate that they are of no great age" (p. 488). If Mr. McGuire's conclusion is correct, aboriginal barter and trade could not have been carried on between distant tribes until within a comparatively recent date, an abundance of evidence to the contrary notwithstanding.

A number of catlinite pipes in the author's collection, among them examples of the disk and tube types, were found in mounds in which there was no evidence of intrusive burials.

Exotics, such as sea-shells, obsidian, Mexican opals, and amazon stone, are frequently found with the original interments of Wisconsin burial mounds. These objects were obtained, by the aborigines, from the sea and mountains through the channels of aboriginal trade, and before these mounds were built. While it is not contended that all Wisconsin mounds are old, there is little evidence that many of them were erected within historic times. The accounts of early explorers make no mention, so far as the writer has been able to learn, of seeing the disk pipe in use.

Proof, if obtainable, of when catlinite was first quarried, or picked up from the glacial drift, would assist in determining the possible age of many pipe forms. The vast amount of work done at the Minnesota pipe stone quarries, and the fact that an Indian would not excavate more material than he could conveniently carry away, has convinced the author that they were worked long before white man's coming. That the sculptures

covering the quartzite boulders, at these quarries, are in a good state of preservation, is an argument sometimes advanced to prove that they were first worked within a comparatively recent date. But faint and fine glacial scratches, covering the same rocks containing the pictures are equally well preserved. Prof. W. H. Winchell, in writing of these etchings, states that: "They pertain, at least, to the dynasty of the present Indian tribes." These figures probably represent the totems or work of some one tribe. This being neutral ground, other tribes may have worked the quarries without leaving these totems, and pipestone may have been mined there long before the picture writing was commenced.

It is probable that these pipes, or at least some of them, were intended for ceremonial purposes and not for common use, as their disks would not stand rough handling, and their shape would make smoking anything but a pleasure. Gen. Thruston says:—"This was probably the fashionable smoking pipe of its day in certain sections. The disk was doubtless a mere conceit, used as an ornamental handle by the Indian dandies of the time" (A. of T., p. 200). At the time of the Discovery, the pipe-stem was held in great veneration by the Indians, it usually receiving a large amount of ornamentation regardless of what the pipe itself might be. Why pipes requiring the expenditure of so much labor in their manufacture should have been made, designed, as the disk type was, to be used without the addition of a mouthpiece, is certainly puzzling, and might indicate that they belonged to an age antedating the venerated stem period.

While the disk pipe is widely distributed, it is comparatively rare. Gen. Thruston mentions two from Tennessee and one from Kentucky. Mr. McGuire refers to half a dozen found in the counties of Boone, Saline, and Chariton, State of Missouri, now in the Douglas collection at the Museum of Natural History, New York City. Dr. David Boyle of Toronto describes two of these pipes found in the Province of Ontario, one of which was made of catlinite. Several are reported from Illinois, Iowa, Minnesota, and the author has drawings of forty-six found in twenty-seven different counties of the state of Wisconsin.

FIG. 124.

Handled Disk Pipe, H. P. Hamilton's Collection.

HANDLED DISK PIPES.

One form the writer has seen fit to designate as the handled disk, from the fact that the elongation of the bowl, beyond the disk, produces a handle by which the pipe was probably held when in use.

Fig. 124, found at Baldwin's Mills, Waupaca county, the largest handled disk pipe so far found in Wisconsin, is of beautiful dark red catlinite with pink flecks. Its bowl is 5" long, terminating in a handle shaped like the blade of a hatchet, with what would be the cutting edge ornamented with three notches. The disk is 3½" wide and so thin that the distance through from the face of the disk to the outer side of the bowl is but ¾ of an inch. The stem-hole has the characteristic curve and its interior is nicely polished. Both stem and bowl-holes appear to have been started with a stone drill and enlarged with a wooden drill used in conjunction with sand. Under a glass this specimen shows innumerable scratches, but none of these appear to have been made by the use of metal tools. The same can be said of eleven handled disk pipes in the author's collection.

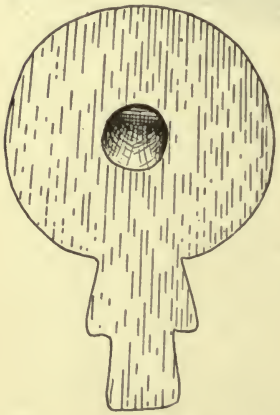


FIG. 125.
Handled Disk Pipe.
Logan Coll., Beloit College.

Fig. 125, found by Justin Carpenter, town of Franklin, Sauk county, in 1860, 6' below the surface, in clay, on newly broken ground, is of red catlinite, 4¼" long, the disk nearly 3" wide and extended to form a handle. The stem-hole is very small and shallow, and there are two perforations of the handle about half an inch above the lower end.

The Logan collection also contains a fine example of handled disk pipe 3½" long, of catlinite, with disk 2½" wide, across the face of which is etched the figure of a headless man.

Fig. 126, found in a mound on the bank of Buffalo lake, Marquette county, is of catlinite, its bowl 4½" wide, base ornamented

Fig. 126.
Handled Disk Pipe.
Author's Coll.

with six notches, and disk 1¼″ wide. The distance from the face of the disk to the outer side of the bowl is one inch. The bowl cavity is ⅝″ wide at its mouth, and the stem-hole is half an inch across. A similar specimen from Waushara county, with the emblem of lightning on the face of the handle, is in the collection of R. H. Stone, Spring Water, Wis.

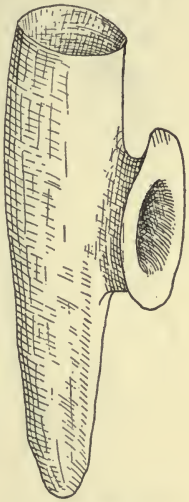


Fig. 127.
Handled Disk Pipe.
Author's Coll.

Fig. 127, found in a mound near Delavan, Walworth county, is of greenish colored limestone, the color probably due to copper stains. Its bowl is 3″ high, terminating in a point, disk one inch wide, stem-hole ⅝″ across, and the bowl-cavity ½″ wide at its mouth. This specimen is irregular in shape and has the appearance of great age. Mr. McGuire (Fig. 109, R. of N. M., 1897) shows a similar specimen from Union county, Kentucky, and another (Fig. 110, same Vol.), from Wabash county, Ill.

Fig. 128.
Handled Disk Pipe.

Fig. 128 is in the Wisconsin Historical Society's collection at Madison, of catlinite, with handle carved to represent the beak of a bird, disk semi-heart shaped. It is almost a duplicate of one in the author's collection, obtained by Mr. W. H. Elkey of Milwaukee, from Mr. Fred Grewe, who found it in the township of Brothertown, Calumet county, in 1898. The last mentioned example is of dark red catlinite.

Fig. 129 was found by Mr. A. J. Miller, six feet below the surface, while digging a cellar at Barron, Barron county. This remarkable pipe is of red catlinite, 4⅛″ long, the disk an inch

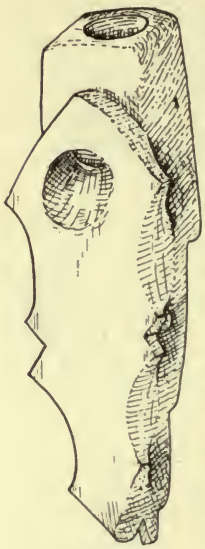


FIG. 129.
Handled Disk Pipe.
Author's Coll.

shorter, extending to the point of the bowl, and combining with it in forming a handle, the lower part of which has a perforation for the attaching of ornaments. Its stem and bowl-cavities are each nearly an inch in diameter. This interesting specimen shows no evidence of metal tools having been used in its manufacture.

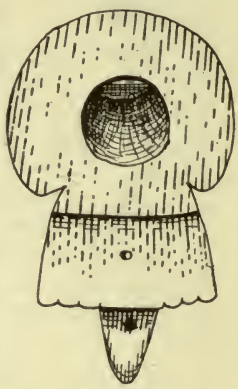


FIG. 130.
Handled Disk Pipe.
Logan Coll.,
Beloit College.

Fig. 130, from Washington county, is of steatite, 3″ long, with a convex disk 1¾″ across and extended down the handle in the form of a curtain. Its stem-hole is unusually large and no marks of metal tools are visible.

Fig. 131, from Jefferson county, found by Mr. C. J. Lee, is of catlinite, 3½″ long, with disk 1¼″ wide, ornamented on three sides of its face by four parallel lines, but the interesting feature of this pipe is the form of its handle, which is carved to represent the head and neck of some animal. On one side of the handle is engraved the figure of a deer and on the opposite that of some other animal. This pipe is worn smooth through use.

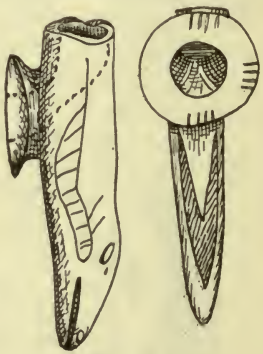


FIG. 131.
Handled Disk Pipe.
Logan Coll.,
Beloit College.

HANDLELESS DISK PIPES.

In this form of disk pipe, the bowl is so short as to be concealed from the smoker, by the disk, when in use. A deep groove extending part way around between the top and bottom of the disk and the bowl, suggests that a loop of rawhide or

other suitable material was attached through which the forefinger of the smoker could be slipped. Frequently the lower part of the bowl has a hole drilled through it, by means of which feathers and other ornaments were probably attached.

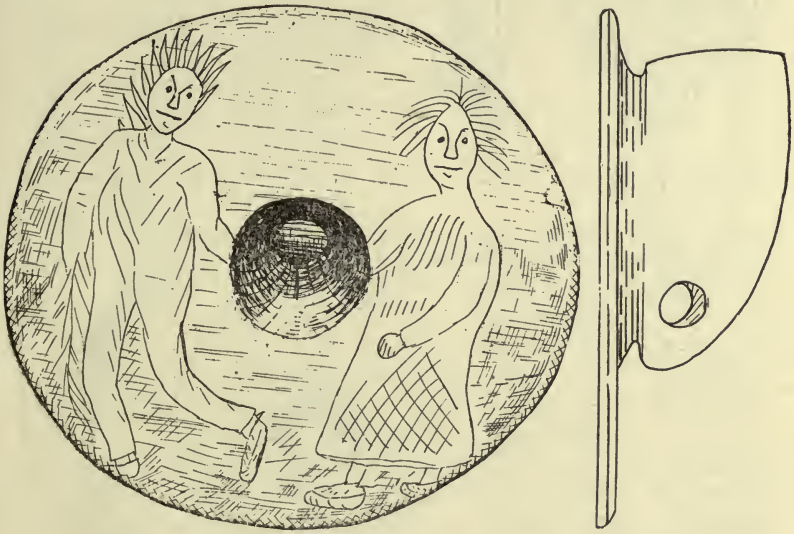
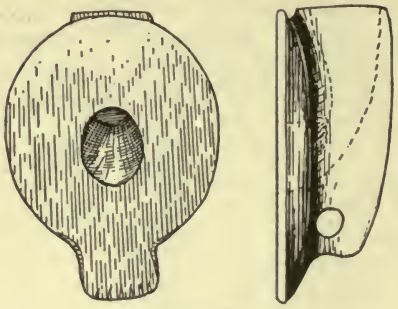


FIG. 132.
Handleless Disk Pipe, Author's Coll.

Fig. 132 was plowed up by Hon. H. N. R. Stark, at Stark, Vernon county, in 1873, and obtained by Mr. W. H. Elkey of Milwaukee, is the largest handleless disk pipe as yet found in Wisconsin. This specimen is of red catlinite with a disk 3″ wide, across the face of which is etched the figure of a man and woman in Indian costume. Its bowl is 1¾″ long, with a hole drilled through its lower part, and between each end of the bowl and disk are to be found the characteristic grooves. The stem and bowl-cavities are each ⅝″ in diameter.

Fig. 133, found on the surface near West Bend, Washington county, by Mr. J. W. Peters, is of red catlinite, with disk 2½″ across, having an extension on its lower side ½ an inch in length, and ornamented with six indentations. The stem-cav-



(G. 133.
Handleless Disk Pipe, Author's Coll.

ity is ¾" across, that of the bowl ½ an inch in diameter at its mouth, and its lower end is perforated. Gen. Gates P. Thruston (Fig. 100, A. of T.) illustrates a handle pipe from Kentucky with a similarly shaped disk.

Fig. 134, plowed up by Mr. Richard M. Flora, in the township of Polaska, Iowa county, in 1887, is of a beautiful, rich red catlinite, with disk 2½" in width, of the same shape as the last mentioned specimen, and ornamented at the bottom and on each side with four indentations. The stem and bowl-cavities are each ⅜ of an inch in diameter.

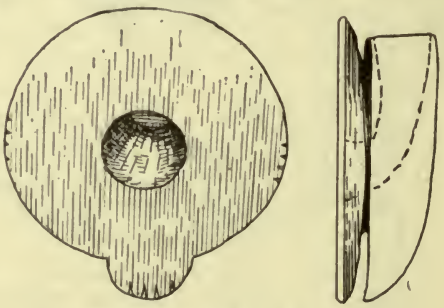


FIG. 134.
Handleless Disk Pipe, Author's Coll.

Fig. 135, from Dodge county, is of red catlinite, disk 2½" wide, on the face of which is etched the figure of an Indian. One peculiarity of the specimen is a deep groove 1½" long on the front of the bowl, which was probably inlaid with bone, lead or shell. A very similar specimen in the author's collection, was found in La Crosse county. An example in the Logan collection, Beloit College, has a rounded bowl with marks near its lower end, representing the eyes of some animal.

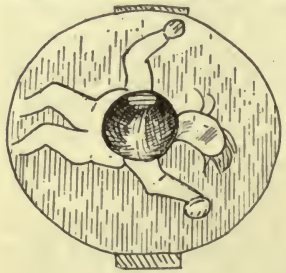


FIG. 135.
Handleless Disk Pipe.
H. P. Hamilton's Coll.

A third variety of disk pipe, having an elongated bowl extending considerably above the disk, but which is merely a modification of the handleless form, the writer will designate as the high-

bowled disk. From the unusual length of the bowl in this style of pipe, one might, at first glance, mistake it for the stem.

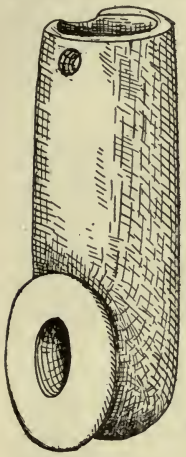


FIG. 136. High-bowled Disk Pipe. Author's Coll.

Fig. 136, found at Onalaska, La Crosse county, collected by Prof. A. S. Mitchell of Milwaukee, is made of catlinite, with a round bowl 3″ in length, disk 1¼″ wide, and stem and bowl-cavities each ⅝ of an inch in diameter. Near the top of the bowl, and facing the smoker, is a small hole by means of which ornaments were probably attached.

FIG. 137. High-bowled Disk Pipe. Author's Coll.

Fig. 137, found in a mound on the east bank of Lake Winnebago, Winnebago county, by the late S. S. Roby, is of catlinite, bowl square in form, 2″ high, disk an inch wide, and stem and bowl-holes each ½ an inch in diameter. A similar specimen, having a perforation near the top of its bowl, was found in Crawford county,—one on Dotys island, Winnebago county; another, badly broken, in Sauk county; and a fine large unpolished example from Manitowoc county, collected by Mr. N. H. Terens; are all in the author's collection. Hon. G. E. Metile, Green Bay, owned a small pipe of the high-bowl variety, from Brown county, recently secured by the author.

FIG. 138. High-bowled Disk.

A fine example in the Logan collection, Beloit College, plowed up by Mr. James R. Boord, at Farmington, Washington county, in 1873, is of catlinite. It is 3″ long, disk 2½″ in width, slightly concave, with eleven deep incisions irregularly distributed over its face, and a very small perforation at the top of the bowl.

Fig. 138, in the possession of Mr. J. P. Schumacher, of Green Bay, was found with a gravel-pit burial at Red Banks, Brown county, 40 years ago, by Thomas Scott, and is probably the only flat top, thick disk pipe so far

found in Wisconsin. This remarkable specimen is made from a flinty limestone nodule. The bowl is 3¼" high, disk 2¼" wide, bowl-cavity made with rotary stone drill; and no metal tool marks appear on its surface. The softer parts of the stone are considerably disintegrated, and it has the appearance of great age.

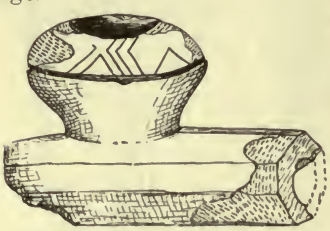


FIG. 139.
Rare Form, Disk Pipe.
Author's Coll.

Fig. 139 illustrates an interesting specimen which, in the year 1886 was brought to the surface by being caught between the hoofs of a cow while crossing some marshy ground near Cottage Grove, Dane county, and was secured by a boy who sold it to Dr. C. B. Hall of Madison. It is of blue limestone, much weathered, with disk-shaped bowl 2" in diameter, very thick, rounded to an edge and highly ornamented with lines and figures; bowl-cavity cone-shaped and made with a stone drill point. The stem is octagonal in shape, 3½" long, with hole ½ an inch across.

HIGH-BOWLED PIPES.

This class includes pipes having very tall, slim bowls with no stem projection, intended to be used with the addition of a mouth-piece.

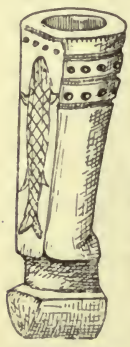


FIG. 140.
High-bowled Pipe.
Author's Coll.

Fig. 140, collected by Mr. Louis Jones, near Packwaukee, Marquette county, is 2" high, of red catlinite, and ornamented with incised lines and dots encircling the bowl. The part of the bowl facing away from the smoker is flattened and shows the engraved representation of a fish.

Fig. 141, found near Spring lake, Green Lake county, is 3" high, of red

FIG. 141.
High-bowled Pipe.
T. W. Hamilton's Coll.

catlinite, square in form, and has walls but ⅜ of an inch in thickness. Engraved on one side is the emblem of lightning. An alate projection near the top of the bowl is perforated to permit of the attachment of ornaments. Almost a duplicate of the last described, of the same material, 2½″ high, and with the alate projection also perforated, is in the Logan collection at Beloit College.

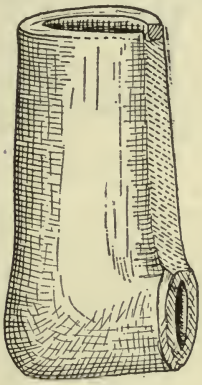


Fig 142.
High-bowled Pipe.
Author's Coll.

Fig. 142, found on Lee's point, township of Sumner, Jefferson county, by Mr. Geo. M. Housz in 1897, is of calcareous limestone, nearly 3″ high, and smoothly finished. It shows no metal tool marks. Its bowl-cavity which is extended through the base, is ⅜ of an inch in its greatest diameter, and that of the stem but ¼ of an inch.

Fig 143.
High-bowled Pipe.
Author's Coll.

Fig. 143, found on the shore of Lake Buttes des Morts in 1891, is of white limestone, nearly 3″ high and with a bowl-cavity half an inch in diameter. This specimen is much weathered, and has the appearance of great age.

POT-SHAPED PIPES.

The name of this type of pipe is suggested by its shape, which in a general way resembles some of the clay pots of Indian make. A few examples have been found in Wisconsin, and one from Illinois is illustrated by Dr. W. K. Moorehead (P. I, 333).

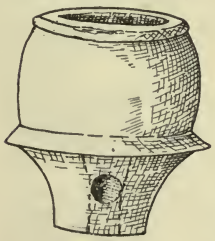


Fig. 144.
Pot-shaped Pipe.
H. P. Hamilton's Coll.

Fig. 144, from the township of Oshkosh, Winnebago county, is of yellowish steatite, 2″ high, 1½″ in diameter, has a polished surface, with bowl cavity extended through its base. The perpendicular basal perforation may have been accidental, but in two specimens examined by the author it was drilled

from the outside, as if intended for the reception of a light, strong handle. A similar example, from Marquette county, but an inch high, is in Mr. S. D. Mitchell's collection at Ripon.

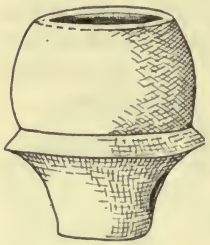


FIG. 145.
Pot-shaped Pipe.
Milw. Museum.

Fig. 145 is from Chilton, Calumet county, of catlinite, with a flat base without the perpendicular basal perforation, and with no projecting lip at the top of the bowl. It has an encircling flange just above the stem-cavity, giving the bowl an acorn-shaped appearance.

FIG. 146.
Pot-shaped Pipe.

Fig. 146, of fine-grained sandstone, with three projecting legs, is illustrated in Lapham's Antiquities of Wisconsin, and marked "Wisconsin." All pot-shaped pipes are intended to be used with the addition of a detachable stem. In many examples the mouth-piece could not have been held firmly in place, owing to the shallowness of the stem-hole and the shape of the cavity, without the lashing on of the same.

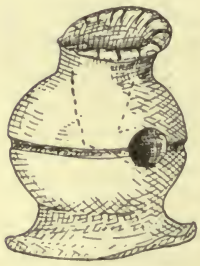


FIG. 147.
Pot-shaped Pipe.
H. P. Hamilton's Coll.

Fig. 147, from Barron county, is of catlinite, 1½" high with a flat base, grooved at its middle and with a thin, projecting lip ornamented with cross-incisions. The pot-shaped pipe is considered as of no great age, and usually shows evidence of metal tools having been used in its manufacture.

VASE-SHAPED PIPES.

These are a finely finished stemless type, much varied as to general shape and ornamentation, some forms having the graceful outlines of the Greek vase, others that of the Roman, and many the stiff, straight sides of the common flower pot. The vase-pipe form, which name can be applied to several modifications of the true vase shape, is common throughout the New England States, St. Lawrence valley and the Great Lakes region.

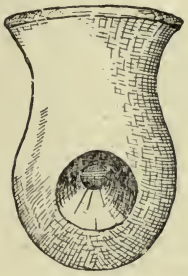


FIG. 148.
Vase-shaped Pipe.
F. M. Coll's Coll.

Fig. 148, from Waupaca, is of a dark brown sandstone, 2½″ high, with stem-hole half an inch in diameter at the surface, and decreasing to a quarter of an inch, where it intersects that of the bowl. The shape and upward angle of the stem-hole precludes the possibility of a mouth-piece having been attached, unless bound to the bowl by a lashing of hide or other suitable material. This pipe shows no metal tool marks and appears to be old, A similar specimen of chlorite, from Green Lake county, is in the author's collection.

Fig. 149, from Rock county, is of dark, mottled steatite, 2″ high, bowl-cavity an inch across at the mouth, and a cone-shaped stem-hole half as wide at the outside, but less than a quarter of an inch in diameter where it intersects the bowl-cavity. Both bowl and stem-holes were made or enlarged by means of rough stone tools.

FIG. 149.
Vase-shaped Pipe.
Author's Coll.

Fig. 150, plowed up in Manitowoc county, is made of fossil coral, 2″ high, with a stem-hole an inch wide, at the outside, and a quarter of an inch across where it intersects the bowl-cavity, thus making the using of a stem impossible without lashing. The drilling was doubtless done by means of stone drills. The beautiful coral markings of the outside of the bowl, and its natural shape, made the grinding of its surface undesirable and unnecessary.

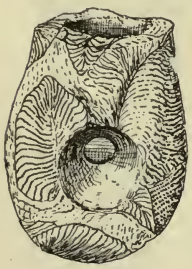


FIG. 150.
Fossil Coral
Vase Pipe.
Author's Coll.

Fig. 151, found by Mr. John Weber, in Killare, Juneau county, in 1895, is of a pinkish colored stone, and exhibits on its two opposite faces etched figures of some animal, possibly a lizard. The figure is after a sketch furnished by Mr. W. H. Elkey.

FIG. 151.
Vase-shaped Pipe.
John Weber's Coll.

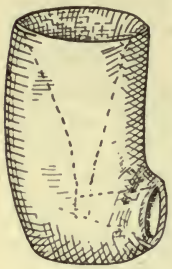


FIG. 152. Vase-shaped Pipe. Author's Coll

Fig. 152, found at Indian Ford, at the foot of Lake Koshkonong, Jefferson county, in 1887, is 1¾" high, with a mere suggestion of a shank or stem, and exhibits no metal tool marks. It is of dark steatite, with cone-shaped bowl-cavity an inch across at its top, made with a rotary drill. A similar specimen, of limestone, from Portage county, is in the author's collection, and one of limestone, from Green Lake county, is in Mr. S. D. Mitchell's collection. These pipes are closely allied to the vase-shaped type, and have probably been evolved from it.

FIG. 153. Vase-shaped Pipe.

Fig. 153, found by Mr. Grant Krause, at Big Suamico, Brown county, is of dark red catlinite, and very small, the cut being the exact size of the pipe. It bears a high polish due to use and age.

Fig. 154, from Crawford county, is of dark, mottled steatite, 2½" high, with cone-shaped bowl cavity. Its stem-hole is cup-shaped, and like the first three vase-shaped pipes described, reaches the bowl-cavity at an upward angle of about 45 degrees.

FIG. 154. Vase-shaped Pipe. Author's Coll.

Fig. 155, from Rock county, is of banded slate, a material but little employed by the aboriginal pipe-makers of what is now Wisconsin. It is 2½" high, finely polished and possibly of quite recent make.

Fig. 156, from Dane county, is of red sandstone, 2½" high, with the bowl cavity extended through its base, and ornamented with two incisions which cross each other in passing around the bowl. Two similar specimens, one marked "Calumet County" and the other "Wisconsin," but without ornamentation, and minus the basal perforation, are in the Milwaukee Museum.

FIG 155. Vase-shaped Pipe. Author's Coll.

An example found on the bank of Pewaukee lake, Waukesha county, now in the Logan collection at Beloit College, is of catlinite, 1½" high, with a basal perforation drilled from the

FIG. 156.
Vase-shaped Pipe.
Author's Coll.

outside, of lesser diameter than that of the bottom of the bowl-cavity, and plainly intentional.

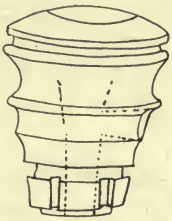


FIG. 157.
Vase-shaped Pipe.
Author's Coll.

Fig. 157, from Green Lake county, is of catlinite, 1½" high, with the bowl-cavity extended through the base. The bowl is ornamented with three encircling equidistant bands or ridges. Near the base is a deep groove, from which there extend downward 4 notches, by means of which a handle might be securely lashed to the bowl, or a stone plug held in place. The portions of the bowl between the ridges or rings, still show some dark artificial coloring. Almost a duplicate of the last described, with base broken away, of compact grey limestone, is in the Logan collection, Beloit College.

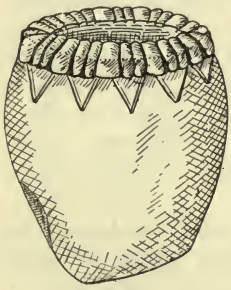


FIG 158.
Vase-shaped Pipe.
F. M. B. Coll Coll.

Fig. 158, from Waushara county, is of purplish catlinite, rough and unfinished, 2" high, with fine ornamentation around the top of the bowl, and extending over its sides. An interesting pipe of this type, 1½" high, of soft argillite, of purplish color, found in the right hand of a skeleton in a mound in Waukesha county, has a wide band extending diagonally around its middle (See Lapham's Antiq. of Wis., p. 83).

Fig. 159, from Winnebago county, is an inch high, of steatite, with an ornamented band around its top, and the bowl-cavity extended through its base. An example similar in shape, with a basal perforation, is in the Logan collection, Beloit College. It is of catlinite, an inch high, a trifle wider at the top of the bowl, and ornamented by 29 dots which encircle the center of the bowl in a spiral fashion.

FIG. 159.
Vase-shaped Pipe
S. D. Mitchell's Coll.

The frequent occurrence of this perpendicular basal perforation in vase-shaped pipes, would almost preclude the likelihood of

its being accidental. One specimen examined seems to have been used as a tube pipe, by having a stem inserted into the extended bowl cavity a sufficient distance to pass the regular stem-hole. A small pipe from Jefferson county, in the collection of Horace McElroy, of Janesville, has a short stem at right angles to the bowl, and a perforated base, into which is neatly fitted a pebble ground to the desired size. In this specimen the basal perforation was evidently accidental. A similar pipe in the author's collection has the basal perforation filled with lead.

FIG 160. Vase-shaped Pipe. Logan Coll., Beloit College.

Fig. 160, found by P. E. Brady, Esq., in 1855, on the shore of Eagle lake, Racine county, is of yellowish sandstone 3″ high, 2″ in its greatest diameter, ornamented by two grooves and a band crossed by zigzag lines encircling the bowl near its top. Its base consists of eight terraces reaching to the bottom of the stem-hole. The bowl-cavity was enlarged by means of the gouging process, and the specimen is considerably weathered.

SQUARE-BOWLED PIPES.

Examples of this type are found in Wisconsin which may be graded from mere roughly shaped, unfinished cubes, to well-finished and finely ornamented pipes. All were intended to be used with the addition of a detachable stem.

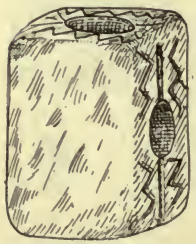


FIG. 161. Square-bowled Pipe. T. W. Hamilton's Coll.

Fig. 161, from Green Lake county, is of catlinite, 2″ high, 1⅛″ wide, and an inch thick, with ornamental lines, and the Indian symbol of lightning etched on two sides of the bowl-cavity, and down each side of the stem-hole. The pipe is nicely finished and may well be considered a rare specimen.

Fig. 162, from Rock county, of granite, in the form of a perfect cube, 2″ square, is unfinished. The cone-shaped stem and bowl-holes are not drilled quite deep enough to intersect each other.

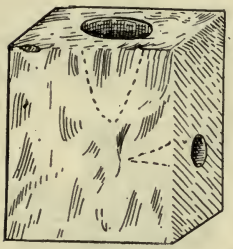


Fig. 162.
Square-bowled Pipe.
McElroy Coll.

Fig. 163, from Green Lake county, of fossil coral, ground into shape, is 2″ high, well proportioned, with cone-shaped bowl and stem-holes, and shows no indication of metal tool marks.

Fig. 163.
Square-bowled Pipe.
Author's Coll.

Fig. 164, from Winnebago county, is of catlinite, 1¾″ high, an inch square, and is ornamented with many parallel lines and triangular figures, evidently made with metal tools. A plain, unornamented example of this type, of catlinite, in the author's collection, appears to be of greater age than the last described.

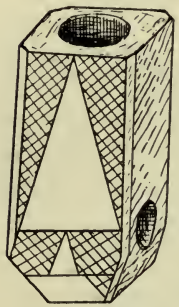


Fig. 164.
Square-bowled Pipe.
S. D. Mitchell's Coll.

Fig. 165, an unornamented, dark-colored sandstone pipe, worn smooth by use, found near McFarland, Dane county, is 2″ high, with a conical bowl and stem-holes. It shows no file marks and has the appearance of great age.

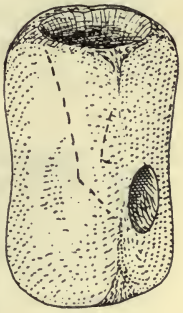


Fig. 165.
Square-bowled
Pipe.
Author's Coll.

Fig. 166, from Marquette county, apparently very old, is of dark sandstone, 2½″ high, and has a small extension of the stem or shank, possibly for ornamentation, but more likely to make a substantial socket for the reception of a mouth-piece. A plain, square-bowled pipe, with a slightly extended shank and flat base, is in the Milwaukee Museum. Two of catlinite, in the author's collection, have more extended shanks, but are of no great age, as they exhibit marks of metal tools.

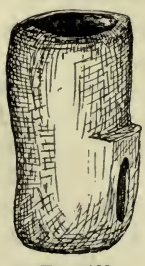


Fig. 166.
Square-bowled
Pipe.
Author's Coll.

Fig. 167, from Waupaca county is of steatite, 1½″ high by 2″ long, both bowl and stem-holes being conical, and ¾ and half an inch in their

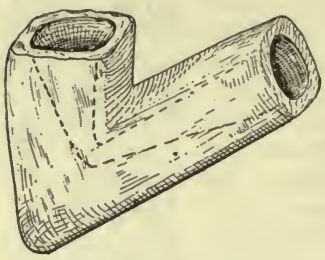


FIG. 167.
Square-bowled Pipe.
H. P. Hamilton's Coll.

greatest diameter respectively. They are gouged out, and no metal tool marks are visible.

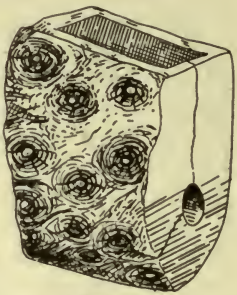


FIG. 168.
Square-bowled Pipe.
Author's Coll.

Fig. 168, from Waukesha county, of fossil-bark, is 2½″ high by 1¾″ broad, and has a square, gouged-out bowl-hole, which has been enlarged since leaving the hands of its original maker. On each side the beautiful markings of the coral are not disturbed, but the ends have been sawed or ground to a flat surface.

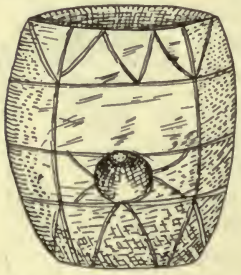


FIG. 169.
Square-bowled Pipe.
Author's Coll.

FIG. 170.
Square-bowled Pipe.
Author's Coll.

Fig. 169, from Juneau county, is of compact limestone, octagonal in shape, 2″ high, rounded towards the top, with the bowl-cavity 1¼″ in diameter at its mouth, and evidently enlarged by the gouging process. This example is ornamented by dots, and deeply cut geometrical lines, shows much use and exhibits no metal tool marks.

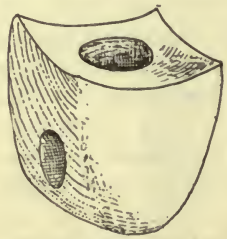


FIG. 171.
Square-bowled Pipe.
Wyman Coll.,
Field Museum.

Fig. 170, from Jefferson county, is of banded slate, 2″ high and 1½″ wide, with slightly rounded edges. The bowl and stem-holes seem to have been made by means of a stone drill. A similar one of the same material from Fond du Lac county, in the author's collection, is 1½″ high, an inch wide, ¾ of an inch thick, and ornamented by 3 incised lines around its top.

Fig. 171, a peculiar pipe of red catlinite, in the Wyman collection, Field Columbian Museum, labeled "Wisconsin," is about half-an-inch square, with a rounded base and concave top.

OVOID PIPES.

The ovoid pipes, so called from their egg-shaped bowls, are of quite common occurrence in Wisconsin. The bowl is usually ground into shape, and has large conical stem and bowl-holes, apparently made by means of stone drills. One from Ohio, illustrated by Mr. J. D. McGuire (p. 485) has a flattened base, while in those found in Wisconsin, it is rounded. Rev. W. M. Beauchamp illustrates one of grey limestone from Onondaga, N. Y., and states that "The form is rather rare in New York, and may be called a southern form."

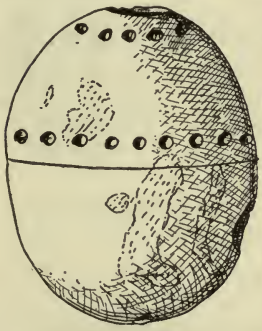


Fig 172.
Ovoid Pipe.
Author's Coll.

Fig. 172, from Manitowoc county, of white limestone, is of almost perfect ovoid form, one side being now much weathered. It is 3½" high, 2¾" in its greatest diameter, ornamented by two encircling lines of dots, and has a conical bowl-hole half an inch in its greatest diameter. This is the largest example of this type of pipe known to the writer. A fine specimen from Oconto county is in the collection of F. J. B. Duchateau, at Green Bay.

Fig. 173 is of white limestone, 2" high, somewhat weathered, and was found in Southwestern Wisconsin. What is almost a duplicate of this pipe, from Dane county, is in the author's collection. One from Adams and another from Sauk county are in the F. M. B. Coll collection. An example from Marquette county is in Mr. S. D. Mitchell's collection at Ripon; a fine specimen from Manitowoc county, and another from Outagamie county, are in Mr. H. P. Hamilton's collection at Two

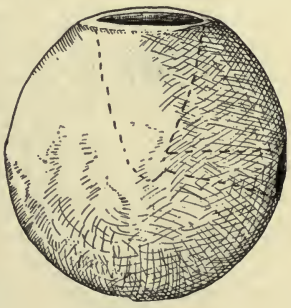


Fig. 173.
Ovoid Pipe.
Wis. Hist. Soc. Coll.

Rivers. In the author's collection are examples from Jefferson, Shawano and Brown counties, respectively.

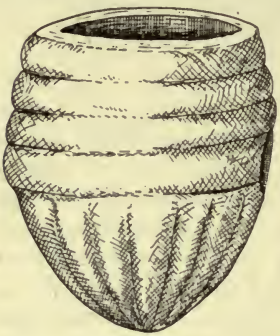


FIG. 174.
Ovoid Pipe.
Author's Coll.

Fig. 174, found on the shore of Beaver Dam lake, Dodge county, is of flinty limestone, much weathered, ornamented by four deeply cut lines extending around the upper half of the bowl, the lower one met by grooves radiating from the bottom of the pipe; has a conical bowl and stem-holes and shows no metal tool marks.

A specimen in Mr. H. P. Hamilton's collection has a groove around its bowl, opposite the middle of the stem-hole.

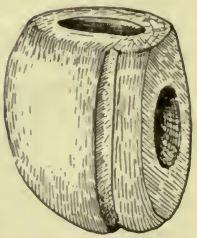


FIG. 175.
Modified Ovoid Pipe.
Author's Coll.

Fig. 175 was taken from a mound in Neenah Park, Winnebago county, in 1888, by Mr. E. M. Neff, and is of dark, slaty rock, 1½" high, oval in form, and with a flat surface facing the smoker. Its bowl and stem-holes are each half-an-inch in diameter, cone-shaped, and worked out with a broad-pointed drill.

LENS-SHAPED PIPES.

This type is rare in Wisconsin, not to exceed a dozen examples having been found. Its leading characteristic is the double convex lens-shape. At first glance it would seem to have been a water-washed pebble, converted into a pipe by the simple addition of bowl and stem-holes, but such is not the case. Of eight specimens examined, each has been worked into shape by the process of pecking and grinding, and none showed file marks.

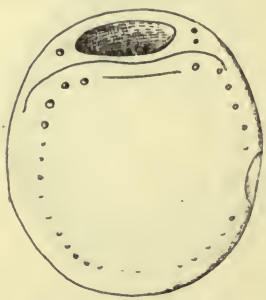


FIG. 176.
Lens-shaped Pipe.
Author's Coll.

Fig. 176, from Waukesha county, of dark basaltic rock, ornamented by a line of dots around each side, is nearly 3" high by 1½" thick at the middle, and with a cone-shaped bowl-hole one inch in diameter.

FIG. 177.
Lens-shaped Pipe.
Author's Coll.

Fig. 177, from the township of Muskego, Waukesha county, is of limestone, finely polished, 3″ high, 1½″ thick, with a cone-shaped bowl-hole ¾″ across, and an unusual notch opposite the stem-hole. This pipe was collected by Dr. Byron O. Nobles of Milwaukee, who presented it to the writer.

Fig. 178, found by Mr. Thomas McLean, in Juneau county, is of flinty limestone, 2½″ high, 1¼″ thick, and with a cone-shaped bowl-hole ½ an inch across. A perfect example, of limestone, is in the collection of the Wisconsin Historical Society. One of sandstone, owned by Mr. J. P. Schumacher was found in Brown county and another in Mr. H. P. Hamilton's collection, is from Outagamie county.

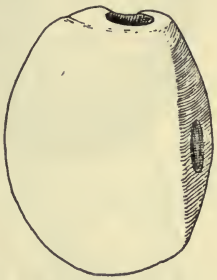


FIG. 178.
Lens-shaped Pipe.
Author's Coll.

KEEL-SHAPED PIPES.

This type of pipe derives its name from the presence of a thin keel or wing-shaped projection, extending from the top to the bottom of that part of the bowl furthest from the smoker. This is a rare form, not to exceed two dozen examples having been found in Wisconsin, and but few, if any, are mentioned by authorities, from other states. A study of this and the succeeding type have convinced the writer that they do not exhibit the marks of metal tools, and are not of recent make.

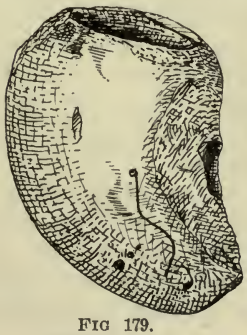


FIG 179.
Keel-shaped Pipe.
Author's Coll.

Fig. 179 was taken from a mound in Brown county, (upon which was growing a pine tree 3 feet in diameter) by Dr. J. A. Rice, in 1870, together with several skeletons and a few rudely chipped arrow points. This pipe is very old, much weathered, and of blue limestone. Part of its surface is scaled off, but some ornamentation with dots and lines remains near the lower part of the bowl. It is 2½″ high, 1¾″ across, and an inch thick. The bowl and stem-

holes are ¾″ and ½″ across, respectively, each cone-shaped, and made with stone drills.

FIG. 180.
Keel-shaped Pipe.
Author's Coll.

Fig. 180, found by Mr. Richard Rawson, in the township of Evansville, Rock county, in 1867, is of compact limestone, ornamented by lines of dots, and the edge of the bowl by numerous notches, which have nearly disappeared through long handling. The pipe is 3″ high, 2″ wide and 1½″ thick, with a cone-shaped bowl-hole ¾ of an inch in diameter, at its top. It has the appearance of great age.

Fig 181, found near Star lake, Vilas county, secured by Mr. W. H. Ellsworth of Milwaukee from a lady residing in California, who obtained it from the finder, is of Lake Superior brownstone. It is much weathered, but still shows symbols of lightning cut into one side, and several parallel horizontal lines, emblems of rain, on the other. It is 2½″ high, an inch thick, with bowl and stem-hole gouged out, and each about ½ an inch in diameter. This rare specimen has every indication of great age, and exhibits no evidence of metal tools having been used in its manufacture. In the author's collection is an example made of limestone, found near Berlin, Wis., which contains slight evidences of similar etchings.

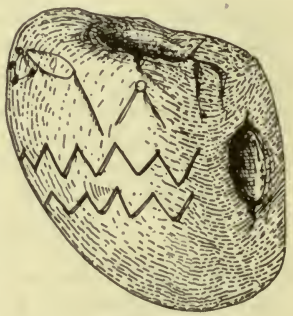


FIG. 181.
Keel-shaped Pipe.
Author's Coll.

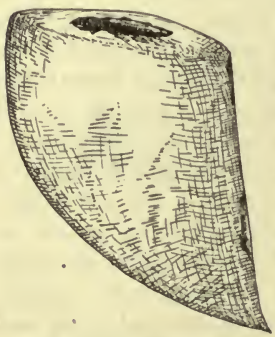


FIG. 182.
Keel-shaped Pipe.
Author's Coll.

Fig. 182, found on the Halter village site, Racine county, is of white quartz, 2¾″ high, with the bowl-cavity half an inch in diameter, and evidently made with a tubular drill point. A very similar example in the au-

thor's collection, found near Berlin, Green Lake county, is of compact white limestone.

An interesting specimen, from Jefferson county, in Mr. D. E. Robert's collection is of drab limestone, and has a groove encircling the bowl opposite the center of the stem-hole. A fine example, from Waupaca county, in the Logan collection, Beloit College, is of compact limestone, 2½″ high, unornamented and apparently of great age.

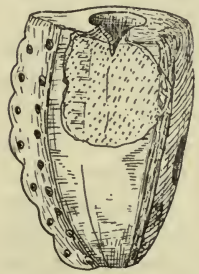


FIG. 183.
Keel-shaped Pipe.
Author's Coll.

Fig. 183 taken from a mound near New London, by Mr. James Hutchinson in 1889, is a remarkable pipe of white limestone, much weathered, 2½″ high, 1¾″ across, and with a cone-shaped bowl-hole half-an-inch in diameter, with stem-hole a trifle smaller, and a pronounced perpendicular keel in front of the bowl, ornamented with scallops and dots.

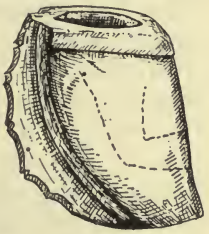


FIG. 184.
Keel-shaped Pipe.
Author's Coll.

Fig. 184, plowed up in Green Lake county, in the year 1866, is of dark compact sandstone, 2½″ high, with a conical bowl-cavity ¾ of an inch in diameter, and stem-hole nearly as large, each evidently made by the use of the stone drill. Its bowl is ornamented with a deep encircling groove near its top, and an artistically scalloped keel on its front. The wing-shaped projection appears to be but an improvement on the older examples of this type.

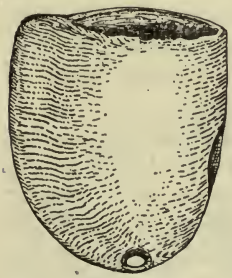


FIG. 185.
Keel-shaped Pipe.
Author's Coll.

Fig. 185, plowed up by Mr. John Peters, near Oshkosh, Winnebago county in 1875, is of bluish limestone, with an unornamented keel running clear around under the bowl, and a perforation through its base, from which ornaments were probably suspended. It is 2½″ high, 1¾″

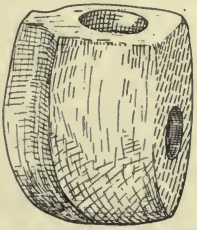


FIG. 186.
Keel-shaped Pipe.
Author's Coll.

wide, ¾ of an inch thick, with a cone-shaped bowl and stem-holes, and was doubtless drilled with stone implements.

Fig. 186, found by Mr. Joe Thompson in Pepin county, in the year 1875, is of compact drab sandstone, with a plain keel 2″ high, 1¾″ wide and an inch thick, having an irregular cone-shaped bowl-hole ¾ of an inch across, and evidently gouged out with a stone tool.

DOUBLE CONOIDAL PIPES.

In this remarkable type the bowl and stem-holes are cone-shaped, at right angles to each other, and meeting at their apices where the two cavities intersect, it being often difficult to determine which was intended for the stem-hole and which the bowl-cavity. This form of pipe is found from Arkansas on the west to the Atlantic ocean on the east, and from the Gulf States on the south to the Canadian border on the north and reaching into lower Canada. It is made of clay, limestone, pottery, and sandstone, the material being as varied as that of any other known type. Those of pottery are often tempered with shell or other suitable material, to prevent cracking in firing.

As to the age of double conoidal pipes, Mr. McGuire states that: "It must further be admitted that in the whole number of pipes of this type in the collection of the U. S. National Museum, there is not a single specimen which has upon it, so far as the writer could observe, a mark indicative of the use of other than the stone tool of the primitive Indian, though many of this type are of quite elaborate design" (p. 528).

In the same paper Mr. McGuire illustrates a double conoidal pipe of pottery, from Southern Missouri, containing six crosses of Greek type, surrounding the bowl. Although as a rule archeologists agree as to the pre-Columbian occurrence of the cross, "several crosses together raise a strong suspicion of white man's influence." This pipe may have been made after the early advent of the Spanish, and yet be very old. Of the examples of this type found in Wisconsin, none contain the least evidence of European influence, either in shape, ornamentation or workmanship, and it is fair to assume that this is one of the oldest pipe forms.

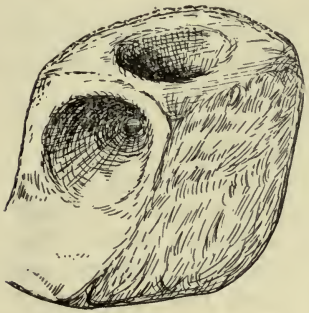


FIG. 187.
Double Conoidal Pipe.
Mil. Pub. Museum Coll.

Fig. 187, from Dodge county, is of grey sandstone, about 2½″ in exterior diameter, stem and bowl-cavities each being cone-shaped, 1½″ in diameter at the surface, and at right angles to each other, intersecting at the apices of the inverted cones, where the opening between the bowl and stem is less than ¼ of an inch wide. This specimen shows no evidence of any tool, but a pecking instrument, having been used in its manufacture, and it was evidently either pecked or hammered into shape, no effort being made to smooth the surface. A similar specimen from McNairy county, Tennessee, and another from Ohio are illustrated by Mr. McGuire (p. 528–529).

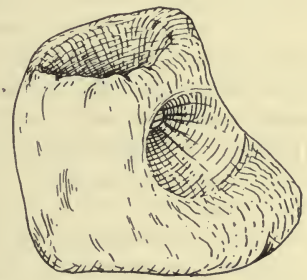


FIG. 188.
Double Conoidal Pipe.
H. P. Hamilton's Coll.

Fig. 188, from Manitowoc county, is of reddish sandstone, 2¾″ high, nearly 3″ wide, and 2″ thick, bowl-hole 1½″ across at its mouth, stem-hole an inch in diameter at its outside. Both are cone-shaped, gouged out, and exhibit no evidence of metal tools having been used in their manufacture.

Fig. 189, a very attractive example, from Brown county, is of dark sandstone, nearly 4″ long, 2½″ high, 3″ wide and oval in shape with a flat base. Its stem and bowl-cavities are each fully an inch in diameter at the surface, and are placed at right angles to each other. This pipe was evidently pecked into shape, both bowl and stem-holes being made by the same

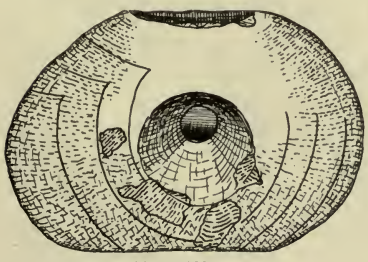


FIG. 189.
Double Conoidal Pipe.
J. P. Schumacher's Coll.

process. Three equi-distant, parallel, incised lines, the significance of which is difficult to ascertain, pass around the center of the bowl, dropping down at a graceful angle to pass the stem-cavity.

FIG. 190.
Double Conoidal Pipe.
Author's Coll.

Fig. 190, from a mound in Outagamie county, is of hard, flinty limestone, ¾" high, an inch long, stem and bowl-cavities each being cone-shaped, exceeding half an inch in diameter at the surface, with a like depth, and at nearly right angles to each other, and intersecting at the apices of the inverted cones, where the opening between the bowl and stem is less than an eighth of an inch in diameter. This specimen shows no work on either the interior or exterior, except such as was obtained by the pecking process, and with no attempt at smoothing the exterior by grinding. An example in E. C. Perkins' collection, a duplicate of the last described, is of catlinite. One of the same shape and size from White Cloud, Mich., is in Mr. H. P. Hamilton's collection. A large pot-shaped double conoidal pipe, taken from a mound in Jo Daviess county, Illinois, is in the author's cabinet.

Double conoidal pipes rectangular in shape, from Louisiana, Missouri, Georgia, Virginia, Tennessee and Arkansas, respectively, are illustrated and described by McGuire (p. 530–533).

PEBBLE PIPES.

A large number of the rudest pipe forms imaginable have been found in Wisconsin, some of which show no work by human hands, save the punching or drilling of a stem-hole through the wall of an eroded stone. They are most primitive in form, the drill holes were made with solid-pointed drills, and in no case has anything been associated with them to indicate recent use. This however, is not conclusive, as Mr. J. D. McGuire (p. 27) refers to a specimen which was found in Haldeman's shell-heap, near Bainbridge, Lancaster county, Pennsylvania, associated with two trade pipes of English make, as indicating that this type of pipe was in use until quite recently.

Fig. 191, from Holy Hill, Washington county, is made of a limestone concretion, 1½" high, and shows no work except that the stem-hole had been punched out from the inside of the bowl, and slightly rounded. A similar example in the author's collection, was found in the same locality.

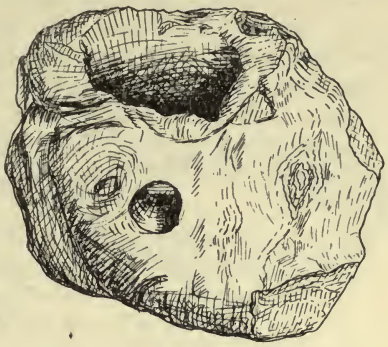


Fig. 191.
Rough Pebble Pipe.
Author's Coll.

Fig. 192, from township of Polaski, Iron county, is made of a limestone concretion, or more properly a badly weathered geode, 1¼" high, and shows no work except of a drilled stem-hole slightly conical in shape.

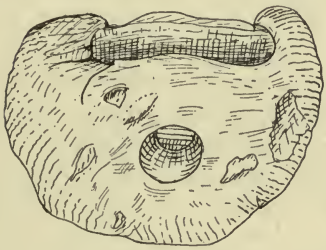


Fig. 192.
Rough Pebble Pipe.
Author's Coll.

Fig. 193, from the bank of Lake Koshkonong, Jefferson county, of a rough, flinty rock, 2½" high, shows no work except that the stem-hole was made with a stone drill, and a few projecting corners chipped off. An example of about the same size and fully as rude, made of a jasper concretion, (now in the author's collection,) was found in Rock county. Similar pipes from the states of Maryland, Florida and Michigan are in the author's cabinet. The specimen from Maryland has a natural cavity, serving the purpose of a bowl, and extending clear through the stone, the lower part of which, when found, was filled with burnt clay, which crumbled when disturbed.

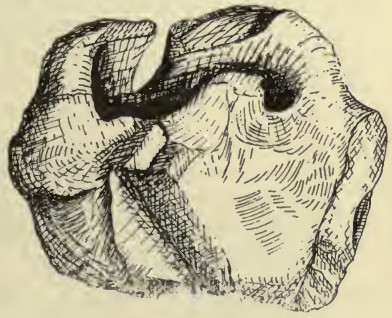


Fig. 193.
Rough Pebble Pipe.
Author's Coll.

A number of Wisconsin specimens have finely finished bowl and stem-holes, with a rough, natural, unworked exterior. These are not unfinished pipes, but are made from pebbles the shape of which happened to suit the fancy of the savage smoker.

FIG. 194.
Rough Pebble Pipe.
Author's Coll.

Fig. 194, from the bank of the Milwaukee river, Silver Springs, Milwaukee county, is a smooth water-washed sandstone pebble, 3″ long, with a gouged-out bowl and stem-hole.

FIG. 195.
Pebble Pipe.
Milwaukee Pub.
Museum Coll.

Fig. 195, of a white, chalky rock, 2″ high with conical bowl and stem-hole, shows no work on its exterior except the grinding down of the top of the bowl. This pipe belonged to the Perkins collection, and is marked "Wisconsin." Illustrations in the author's sketch book show pipes of this type from the counties of Outagamie, Rock, Green Lake, Dane, Door, Shawano, Marquette, Menomonee, Jefferson, Calumet, Sauk and Winnebago.

TUBE PIPES.

The straight stone tube is considered by our best authorities to be the most primitive form of pipe. It is the only type of aboriginal pipe that is distributed over our entire continent. The skill of the savage in drilling these objects, without the use of metal tools, excites wonder and admiration. They vary in length from 1″ to 18″, and are either circular, elliptical, or square in section. Some have a straight hole of uniform diameter. In the greater number it is enlarged at one or both ends, by a process of scraping or gouging. Dr. Wilson, in referring to the drilling of tubes, considers it: ' A fine art, because of the dexterity required to drill accurately and continuously a large hole through so small a cylinder for such a distance without break or change of direction" (Smithsonian Rep. 1896, p. 446).

Much has been written as to the probable use of these tubes by the aborigines, and the weight of evidence seems to warrant

the conclusion that most of them were used as pipes, and others as medicine tubes. Very short, elliptical tubes were probably worn as beads, and another form, with a bore of uniform diameter may have been used in sizing and finishing arrow-shafts.

Many tubes were doubtless used with the addition of a mouth-piece. "The California Indians drilled their tubes from both ends and enlarged the hole from one end by scraping, the mouth-piece being made of a bird bone stuck on with asphaltum (Schumacher, p. 268).

Mr. Gerhard Fowke in reviewing the history of the tube, wrote: "Schoolcraft observed that the Dakota Indians used a horn tube in bleeding, one end was set over the cut, and the other vigorously sucked." Powers says the Klamath Indians used tubes for smoking, while Mr. H. H. Bancroft reported that the Acaxees of Mexico employ "blowing through a hollow tube" for the cure of disease, and also that the Indians of Southern California inhale the smoke of certain herbs through a tube to produce intoxication. According to C. C. Jones, the Florida and Virginia Indians used reeds in treating diseases by sucking or blowing through them, and also in cauterizing. He observes that the Indians of Lower California employed similar processes, using stone tubes instead of reeds. Hoffman illustrates the removal of disease through the agency of a tube of bone by a JES'SAKID, or Ojibwa medicine man. Reed calls attention to the fact that the old Spanish writers described "a forked wooden tube, the prongs being inserted in the nostrils, while the other end was held over smoldering herbs," and suggests that the Indians may have used stone tubes in the same way (13th Eth. R., p. 127).

CONOIDAL TUBE PIPES.

The form of tube pipe herein first submitted for the student's consideration is one complete within itself, conoidal in its longest diameter, having usually a large bowl gradually decreasing in size towards the stem-hole, and making the addition of a mouth-piece unnecessary.

Fig. 196. This fine specimen was found by Mr. William Jay Howard, near Stiles, Oconto county, in 1862, and has been in

the collection of Mrs. E. House for 40 years. It is 5½" long, of drab steatite, polished by use and ornamented by sev-

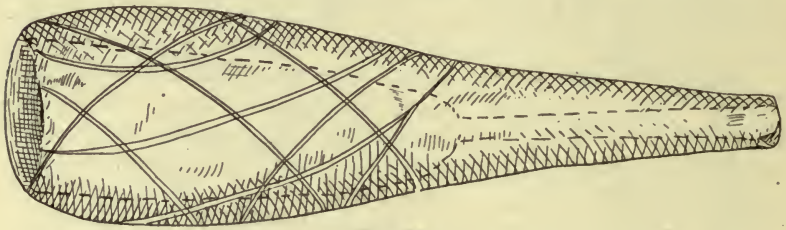


FIG. 196.
Conoidal Tube Pipe, Mrs. E. House's Coll.

eral deep cut lines passing over the bowl and crossing each other at right angles. The bowl cavity is cone-shaped and enlarged by the gouging process.

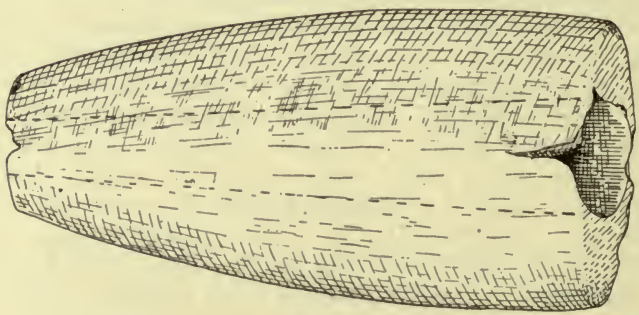


FIG. 197.
Conoidal Tube Pipe, Author's Coll.

Fig. 197, found in Mr. Harry Campbell's garden, Omro, Winnebago county, is of dark, slaty rock, elliptical in section, 4½" long, 2" wide at one end and tapering to an inch at the other. This pipe seems to have been shaped with the use of a stone hammer. Its surface shows much wear. The cone-shaped cavity is an inch in diameter at one end, and less than half an inch at the other. The bore shows no rotary drill marks, but is very irregular in shape, having been gouged out with a narrow tool, apparently of stone, working from each end and resulting in the cavity being the largest at about the middle of the tube.

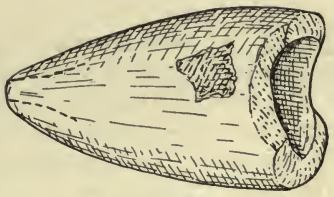


FIG. 198.
Conoidal Tube Pipe.
Author's Coll.

Fig. 198, from Buffalo county, is of fine grained sandstone, circular in section, about 1½″ long, an inch in diameter at the large end, and tapering to almost a point. Here the cavity or stem-hole is but an eighth of an inch across. The exterior is rough, having been pecked into shape. The bowl cavity was probably drilled its entire length by means of a solid drill point, the larger end being subsequently enlarged by means of scraping or gouging with a narrow tool, apparently of stone.

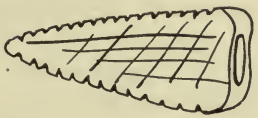


FIG. 199.
Conoidal Tube Pipe.
J. P. Schumacher's Coll.

Fig. 199, from Brown county, is of drab steatite, 2½″ long, square in form, and ornamented on all edges by slight indentations, after the style of treatment of the Pueblo tube. Its sides are incised with parallel lines crossing each other. Its appearance indicates long use, and great age.

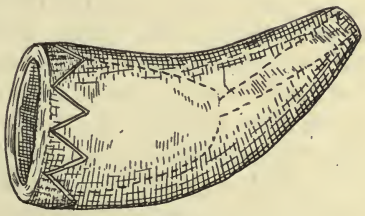


FIG. 200.
Conoidal Tube Pipe, Author's Coll.

Fig. 200, from Marquette county, found by Mr. Ben Chapman of Moundville, on the Royce Farm village site, near Packwaukee, in 1890, is of drab steatite, 2″ long and trumpet-shaped. Tubes of this type are of extremely rare occurrence, and appear to be a step, in the evolution of the tube, in the direction of the rectangular pipe.

DESCRIPTION OF PLATE XII.

A., in the author's collection, is almost on exact duplicate of Fig. 197, with which it was found. These can well be regarded as two of the most rare and interesting tubes, both as to shape and age, as yet found in Wisconsin. A duplicate of this specimen is in the Logan collection, Beloit college, collected by the late F. S. Perkins, in Wisconsin.

B., in the author's collection, from Washington county, is of steatite, 2¾″ long, pecked out, worn by use almost to a

polish, one end tapering to a point and having a cone-shaped bowl cavity, with a very small opening at the stem.

C., in the author's collection, was taken from a mound in Brown county, upon which was growing a pine tree three feet in diameter, the pipe being found directly under the base of the tree. This unusual form of tube, which much resembles the modern cigar-holder, is of red catlinite, with a rough, unpolished surface, square in shape, tapering to a mouthpiece, with a ridge or keel-shaped projection extending from the large end part way down the tube. This specimen is 2½" long, with a cone-shaped cavity half-an-inch in its largest diameter, and tapering to a minute opening at the smaller end. This example is one of many, indicating the early use of catlinite for pipe-making.

D., from Waukesha county, collected by Dr. I. A. Lapham, was destroyed in the Science Hall fire at Madison, Wis. This specimen, of which the material is not given, was cigar-shaped, with a flange about the bowl, and a keel-shaped projection on its side with six perforations.

E., from Rock county, in Mr. Horace McElroy's collection, is of granite, 4½" long, unfinished, the tube being simply pecked out in the rough, and the cavity, started from the larger end, and reaching but part way through the pipe. This is an interesting specimen as it illustrates the fact that many stone pipes were at first merely roughed out, then drilled, and lastly, the outside worked down to the desired degree, thus lessening the danger of breaking the specimen in drilling.

F., from Outagamie county, in Mr. F. M. Benedict's collection, is 4½" long, of brown sandstone, and has a cone-shaped cavity. It exhibits indications of great age.

Another interesting form of conoidal tube pipe has a bowl-cavity of such size at the smaller end as to require the addition of a stem of wood, bone, or possibly of stone. These mouth-pieces served the purpose of preventing the tobacco, or other material from entering into the smoker's mouth. It is claimed that this type of tube pipe was sometimes used without the addition of a mouth-piece, and with the insertion, into the stem end, of a ball of clay or stone, perforated to permit escape of the smoke, but this manner of using the tube must have been out of the ordinary.

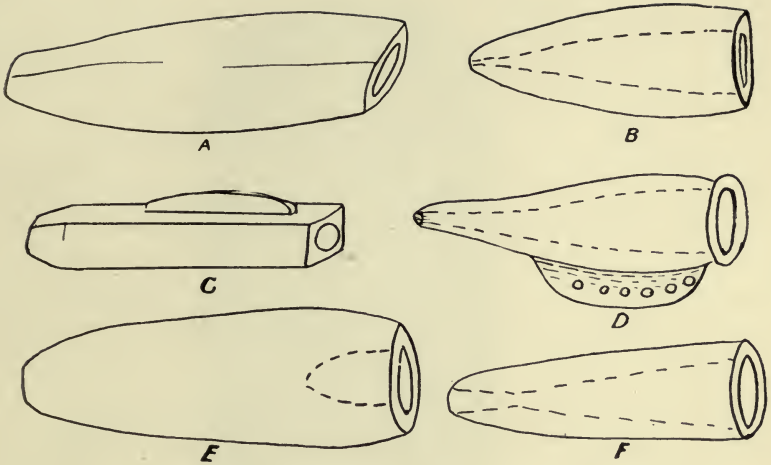


PLATE XII.
Conodial Tube Pipes.

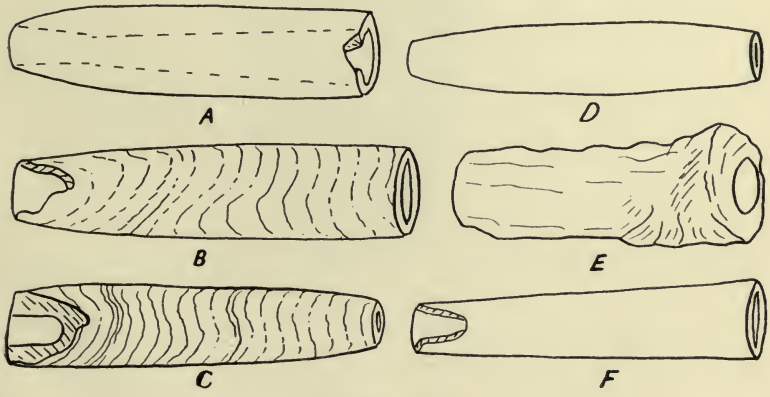


PLATE XIII.
Conodial Tube Pipes.

Fig. 201.
Conoidal Tube Pipe, Author's Coll.

Fig. 201, found by A. Hudson, at Gibson, in Manitowoc county, is of dark red catlinite, 5″ long, 1½″ in its greatest diameter, the sides somewhat flattened, and tapering to half an inch in thickness at the stem end. The interior cavity is cone-shaped, but very irregular, having been enlarged by the gouging process. The bowl end is ornamented by deep notches, while upon each of the flattened sides of the tube has been cut the image of a bird. This specimen shows much wear, but no evidence of the use of metal tools in its manufacture.

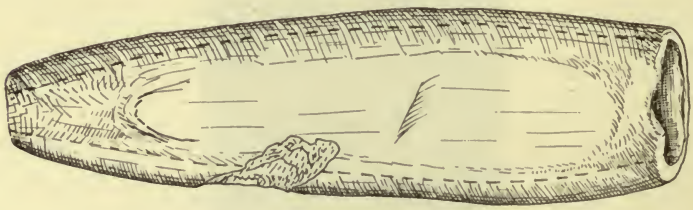


FIG .202.
Conoidal Tube Pipe, Author's Coll.

Fig. 202, from Sheboygan county, found by Herman Kruske, at Adell, collected by Mr. W. H. Elkey, is of red catlinite, 5½″ long, 1½″ at its greatest diameter, the exterior circular, with somewhat flattened sides about the middle. The cavity of this pipe is about an inch in diameter at the mouth of the bowl, half an inch at the stem opening, and was drilled its entire length by means of a solid drill; the bowl and stem end being subsequently enlarged by scraping and gouging. This specimen shows no marks of metal tools. The Logan collection, contains a tube found at Wayne, Washington county, 3½″ long, of unpolished catlinite, ornamented around the bowl end by deeply cut cross lines.

DESCRIPTION OF PLATE XIII.

A., a fine example in the author's collection from Sheboygan county, is of catlinite, 5″ long, 1½″ in its greatest diameter, the bowl-cavity made with a rotary drill, the ends enlarged, the mouth of the cavity ⅞ of an inch across, and the stem-hole about half as wide at the surface. This tube is well

rounded, unpolished, shows hammer marks in profusion, but none made by metal tools.

B., in the author's collection, from Washington county, is of Huronian slate, circular in section, 6″ long, 1¼″ in its largest diameter and tapering to ⅞ of an inch at the smaller end. The interior cavity made with tubular drill, started from each end, (as is the case with most tubes), the marks of the drill being quite apparent. Its bowl-cavity is an inch in diameter at the large end, and ⅝″ at the smaller one, the walls of the pipe hardly exceeding an eighth of an inch in thickness. This latter would appear to show wonderful skill in the drilling, but the tube was probably of greater diameter when drilled, and was afterwards worked down to the present thinness. This pipe contains no perceptible metal tool marks, and was doubtless used with the addition of a mouth-piece.

In Mr. H. P. Hamilton's collection is a broken example, of black slate, from Winnebago county, much resembling the last described.

C., in the author's collection, from Washington county, is of banded Huronian slate, 5″ long, 1¼″ in its greatest diameter, tapering to ¾ of an inch at its smaller end; interior cavity, ⅝″ at the stem end, and made with rotary drill.

D., in Mr. R. Hamel's collection, from Green Lake county, is circular in section, 5¼″ long, 1⅛″ in diameter at the middle tapering slightly towards each end. This specimen is made of granite, with the stem-hole about half-an-inch in diameter throughout its entire length.

E., in the author's collection, from Waukesha county, is of hematite, rudely pecked into shape. This pipe is circular in form, 3″ long, 1½″ in diameter at the bowl end, and an inch across at the stem end. The bowl-cavity averages about half an inch in diameter, one end having been enlarged by the gouging process.

F., in the author's collection, from Jefferson county, is of grey steatite, 5″ long, an inch in diameter at the larger end, and gradually tapering to ⅝ of an inch at the opposite end. The bowl-cavity is ¾ of an inch across at the surface, ½ of an inch at the stem-hole, and drilled from each end. Where the cone-shaped drill-holes intersect, the cavity is about an eighth of an inch in diameter.

HOUR-GLASS TUBES.

This form is rare in Wisconsin, but quite frequently found south of the Ohio river, where specimens sometimes attain the length of 18". While this form resembles the hour-glass in shape, it does not follow that it was copied after that well-known old "time-marker," or that it in any way shows the influence of the whites.

As to their use, Mr. J. D. McGuire remarks: "These tubes have been supposed to have served, among other purposes, as astronomical instruments, a suggestion hardly deserving serious consideration. This type, the writer thinks, were employed as pipes, a belief in which many now concur" (p. 398).

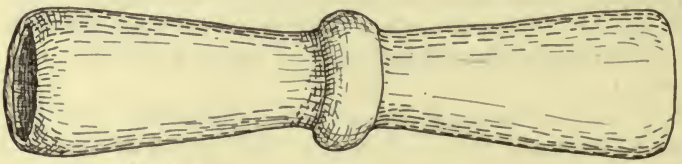


FIG. 203.
Hour-glass Tube, Author's Coll.

Fig. 203, in the author's collection, from Columbia county, is of steatite, 4½" long, with a greatest diameter of 1¼", and a plain band encircling its middle. The interior cavity of this tube is in form of a double cone, an inch in diameter at its openings, and tapering to less than ¼ of an inch where the two cones intersect. The bore was made with a solid rotary drill point. This tube is not well rounded or finely finished.

ARROW-SHAFT FINISHERS.

This interesting form of tube will be considered here as it may have served the double purpose of pipe and mechanical tool. Its interior cavity, which was invariably drilled from one end, is the same size throughout. The hole is of the usual diameter of an arrow-shaft and generally very smooth. Some examples have a well worn surface groove. These characteristics

seem to suggest that it might have been intended for the purpose of straightening, rounding and polishing of arrow-shafts.

That they were sometimes used as pipes is indicated by evidences of the walls of the cavity having been subjected to heat. The insertion of a perforated plug of wood into one end of the tube would readily convert it into a pipe.

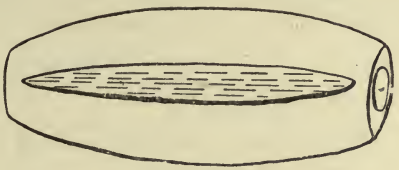


FIG. 204.
Arrow-shaft Finisher, Author's Coll.

Fig. 204, collected by Mr. W. H. Ellsworth of Milwaukee, from Racine county, is of banded slate 3½″ long, 1½″ wide, elliptical in section, and with a groove running lengthwise of its surface. The bore is half-an-inch in diameter throughout its entire length. The exterior of this tube is rounded down toward its ends, thus enabling the hand to grasp and firmly hold it at the middle. Its interior cavity is worn smooth.

DESCRIPTION OF PLATE XIV.

A., in the author's collection, from Cedarburg, Ozaukee county, is practically of the same dimensions as the last described, being minus the surface groove, but instead, having one flat side, much worn. Its interior cavity is half-an-inch in diameter, and very smooth from use.

B., in the author's collection, from Green county, is of slate, 4″ long, the cavity half-an-inch in diameter, and drilled from one end, as all this type of tubes appear to have been. This specimen is interesting in being unfinished, its exterior simply roughed out, and the cavity drilled just far enough to break out at the end opposite the starting point.

C., in Mr. Horace McElroy's collection, from Southern Wisconsin, is of banded slate, 3¼″ long, 2½″ wide at the middle, elliptical in section, tapering toward the ends, and with all the

usual characteristics of this type of tube. A fine example is in C. T. Olen's collection at Oshkosh.

D., is in the Wisconsin Historical Society's collection.

PECULIAR TUBES.

In the author's collection of tubes, found outside the borders of the state of Wisconsin, are a few deserving of special mention.

DESCRIPTION OF PLATE XV.

A., from Van Buren county, Michigan, is of talcose slate, 6" long, 1¾" in its greatest diameter, the bowl square in form with rounded corners for 2½ inches, then suddenly becoming cylindrical and tapering to almost a point. Its bore is cone-shaped 1¼" across at the large end and ⅛ of an inch at the stem-hole. The interior cavity was made with a rotary drill, the bowl opening enlarged by gouging and scraping.

B., from Rainy Lake country, Minnesota, is of red sandstone, with a rough exterior, 4" long, and 1 1/3" in its greatest diameter. This specimen is peculiar in having a deep groove encircling it near the large end, with a short, horizontal notch on each side extending from the circular groove to the large end of the tube. Its cavity is half-an-inch in diameter at one end, and slightly tapering towards the other. The exterior shows hammer marks, and has an appearance of great age.

C., a very interesting specimen from Scott county, Iowa, is of compact sandstone 3½" long, 1½" in its greatest diameter, with a cone-shaped interior cavities made with a stone drill. Its peculiar shape might indicate a step in the evolution of the straight tube toward the rectangular pipe.

D., from North Carolina, is of steatite, 3½" long, 2½" square, at the large end, with a cone-shaped bowl cavity, 1½" in its greatest diameter, and capable of holding a handful of tobacco.

E., from South Dakota, is of a water-washed granite pebble, 3" long, with well worn interior cavity half-an-inch in diameter, and straight through its center. This specimen shows great skill in drilling, as the walls in places are scarcely ⅛ of an inch in thickness, the exterior not having been worked in the least.

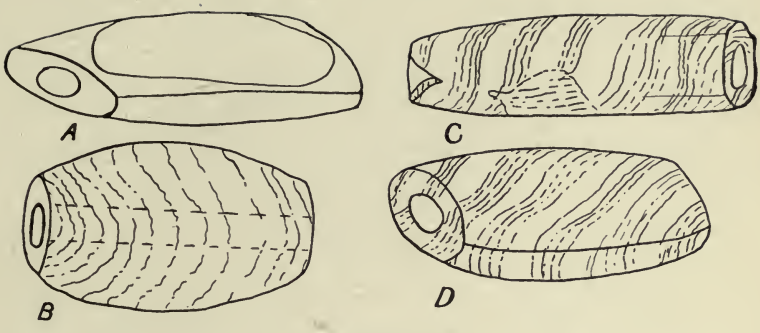


PLATE XIV.
Arrow-shaft Finishers.

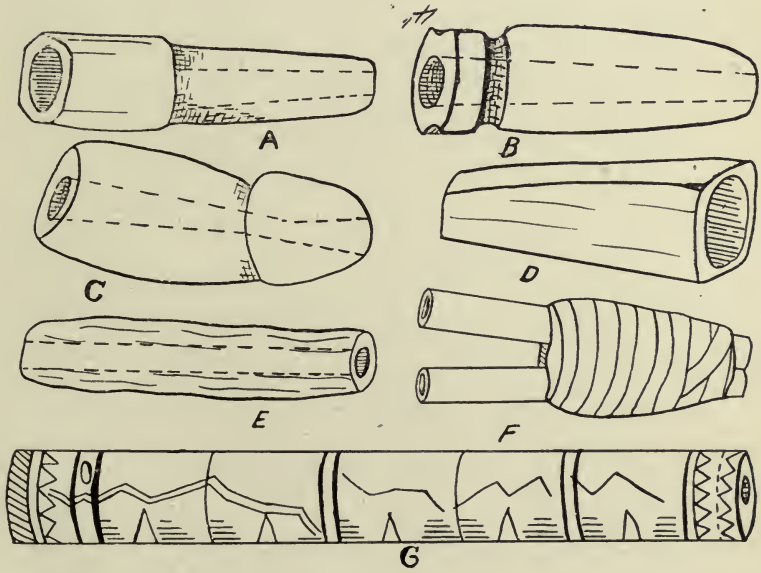


PLATE XV.
Peculiar Tube Pipes.

F., snuffing tubes from ruins at head of the Segovia River, Nicaragua, 3″ long, composed of two hollow bones, probably from the wings of a bird, bound together, when found, by a black gum and wound with some sort of a fibre. These forked tubes were probably used for snuffing the fumes of some narcotic. One, in a solid piece with two branches, found at Tiahuanaco, Bolivia, now in the University of Philadelphia, is illustrated by Mr. J. D. McGuire (p. 365).

In the use of this instrument, Oviedo *(Historia de las Indias Occidentales,* Salamanca 1535) says: "These forked sticks are inserted into the nostrils and the other end applied to the burning leaves of the herb."

Mr. Jos. Fume, in his paper "A Paper of Tobacco," printed in London in 1839, describes the use of these instruments.

G., is of bamboo, collected in New Caledonia, South Seas. This tube is 28″ long, 2″ in diameter, and highly ornamented with marks and figures burned in. The bowl-hole is at one end and the stem-hole on the side near the opposite end. In smoking this pipe, a wad of green grass is placed in the tube to prevent the escape of the tobacco into the smoker's mouth; the tobacco is next worked in through the small bowl opening, fire applied, and the tube drawn full of smoke. A finger is placed over the stem-hole as it is passed from one to the other of the natives, each filling his lungs with one long inhalation from the tube. A second bamboo specimen in the author's collection from New Guinea is 24½″ long and much more highly ornamented.

The Cliff Dwellers made and used pipes long before the Discovery. As to their present use, James Stevenson writes: "The hollow tube pipes are not in use at the present time, (in the Pueblos) but are frequently found around the ruins in the possession of the Indians" (2nd. Rept. Bu. of Ethno., p. 378).

DESCRIPTION OF PLATE XVI.

This plate represents pipes of different shapes, found in the ruins of the Pueblo Taos, near St. Johns, Arizona, destroyed by the Spaniards about 250 years ago.

A. Steatite, 2½″ long, to be used with a mouth-piece. B. Dark pottery, finely etched, 3″ long. C. Yellow pottery, 2″

long. D. Black pottery, 9″ long, highly ornamented, having received an enameling which seems to have been polished, after firing, by rubbing. The bowl opening is ¾ of an inch in diameter. The stem is one-third as large. E. Dark lava rock, 2″ long, with the bowl-cavity half-an-inch in diameter throughout its length. F. Black glazed pottery, 8½″ long, ornamented by numerous indentations. G. Yellow sandstone, 4″ long and 2″ in its greatest diameter. Bowl-cavity cone-shaped, 1½″ wide at mouth, and half-an-inch at stem end. H. Yellow pottery, conical in shape, 2″ long. I. Black pottery, glazed, 3″ long, same shape and ornamentation as Fig. E.

CALIFORNIA TUBE PIPES.

Much like the Pueblo pipes are the well-known tubes of California. Mr. Otis Mason states that: "The stone stem pipes (of California tube form) are taken from the old graves and this kind are no longer in use" (Smithsonian Rep., 1885, pt. I, p. 219).

Mr. Paul Schumacher writes that the Klamath Indians of California still use a tube pipe of steatite, and that it has amused him "to see them bending back their heads to bring the pipe in a vertical position, so as not to *lose* any tobacco" (Wheeler's Survey, vol. VII, p. 133, quoted by Thruston, p. 194).

The oldest California tube pipes were doubtless made of steatite, talcose slate, limestone or serpentine, used with the addition of a mouthpiece fastened to the bowl by means of asphaltum. Later forms have a short stone bowl with an attached wooden stem of considerable length. Some very old appearing pipes of wood have been found, which are not usually credited with great age.

DESCRIPTION OF PLATE XVII.

1st. Of serpentine, 7″ long. 2nd. Of limestone, with mouth-piece of bone cemented to the bowl with asphaltum. 3rd. Of steatite, pipe bowl with a shallow cavity attached to a stem of wood, making a total length of 6.″ 4th. Of steatite, tube

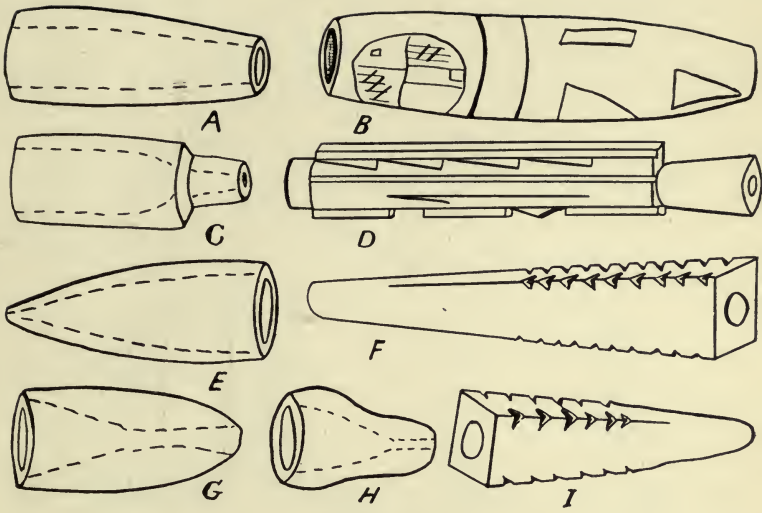


PLATE XVI.
Cliff Dwellers Tube Pipes.

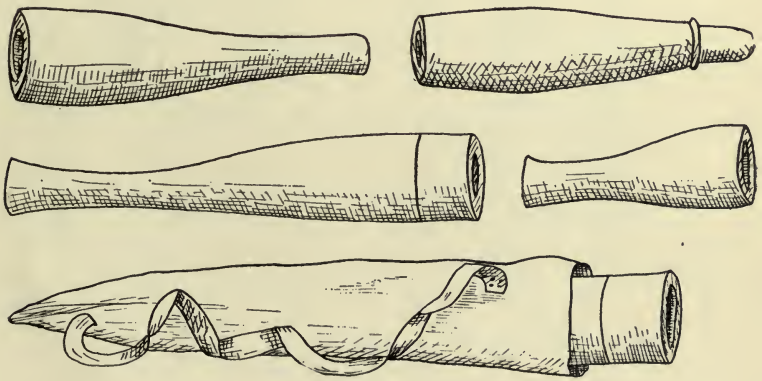
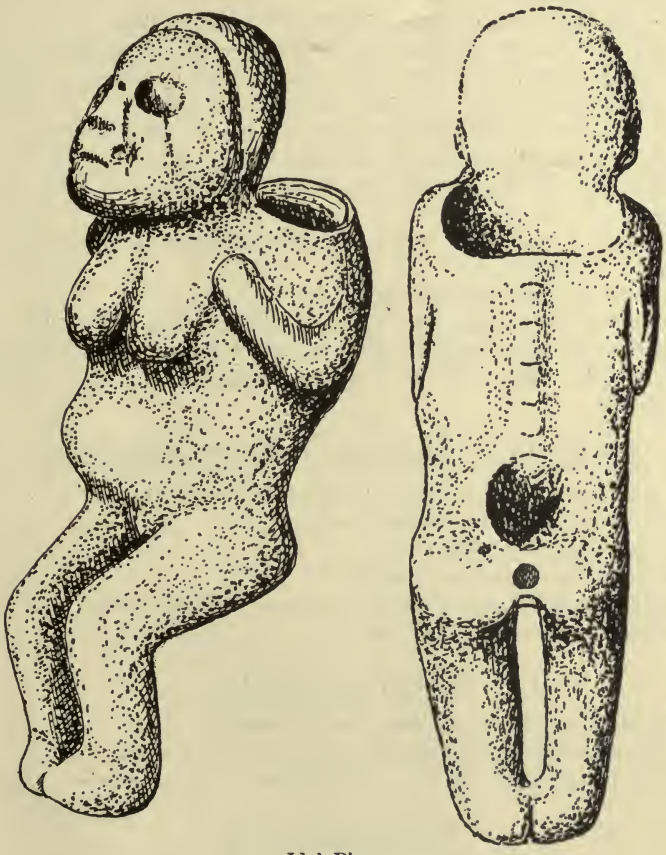


PLATE XVII.
California Tube Pipes.

5″ long, with conical bowl cavity. 5th. An example with a stone bowl and wooden stem, and with old leather case for carrying.

NOTE: Since the writing of this paper the collection of Mr. J. G. Pickett has, through the munificence of Mrs. Leander Choate, passed into the possession of the Oshkosh Public Library. Thus another fine cabinet has been saved to Wisconsin students.



Idol Pipe.
(Full size.)
J. P. Schumacher's Coll.
Recently found near Sturgeon Bay, Door county.
It is of dark serpentine, finely polished and is a rare specimen. Reported to the author after this paper was in print.

Wisconsin Archeological Society.

Organized June 12, 1899. Incorporated March 23, 1903.

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Vol. 4. JANUARY, 1905. No. 2.

THE WISCONSIN ARCHEOLOGIST

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Vol. 4. APRIL to AUGUST, 1905. Nos. 3 and 4.

THE WISCONSIN ARCHEOLOGIST

Published by Authority of Law.

By the Wisconsin Archeological Society, Milwaukee, Wis.

THE ABORIGINAL PIPES OF WISCONSIN.

MADISON, WIS.
DEMOCRAT PRINTING CO., STATE PRINTER.
1905.